

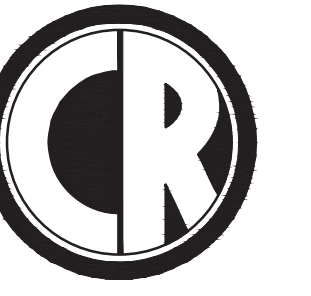
DOUGLAS COUNTY TAHOE JUSTICE COURT BOILER AND DOMESTIC HOT WATER GENERATOR REPLACEMENT

175 US-50
STATELINE, NEVADA 89449

FOR
DOUGLAS COUNTY PUBLIC WORKS
1120 AIRPORT ROAD, BUILDING F-2
MINDEN, NV 89423

GENERAL NOTES

1. THE PROJECT SPECIFICATIONS AND DRAWINGS ARE A DOCUMENT SET AND SHOULD NOT BE SEPARATED. INFORMATION AND REFERENCES ARE CONTAINED IN ALL SPECIFICATIONS AND DRAWINGS.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FULLY UNDERSTAND THE COMPLETE SET OF SPECIFICATIONS AND THE DRAWINGS FOR THIS PROJECT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL OF THE INFORMATION CONTAINED IN THE SPECIFICATIONS AND DRAWINGS, INCLUDING ALL OTHER DISCIPLINES (ARCHITECTURAL, ELECTRICAL, STRUCTURAL, ETC.) PRIOR TO BID AND CONSTRUCTION.
3. THE CONTRACTOR SHALL INSTALL THE NEW EQUIPMENT, AND PIPING AROUND ALL EXISTING OBSTACLES INCLUDING: ELECTRICAL CONDUIT, DOMESTIC WATER PIPING, WASTE AND VENT PIPING, CHILLED AND HEATING WATER PIPING, AND FIRE SPRINKLER PIPING. PROVIDE OFFSETS TO AVOID RELOCATION OF OTHER UTILITIES. RELOCATE UTILITIES IF THEY ARE IN CONFLICT WITH THE MECHANICAL SYSTEM INSTALLATION, CAUSE DEVIATIONS IN THE DESIGN INTENT, UNSATISFACTORY OPERATION, NOISY CONDITIONS, OR INTERFERE WITH MAINTENANCE. IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE ANY UTILITY RELOCATION WITH THE APPROPRIATE SUBCONTRACTOR.
4. THE INFORMATION INDICATED ON THESE DRAWINGS AS EXISTING IS BASED UPON INFORMATION TAKEN FROM AS-BUILT DRAWINGS, FIELD INVESTIGATION, AND INFORMATION OBTAINED FROM SUBMITTAL DATA, ETC. THE PLANS DO NOT GUARANTEE ACCURACY BUT ARE ONLY AN INDICATION OF EXISTING CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY EXACT CONDITIONS SUCH AS EQUIPMENT PLACEMENT, DUCTWORK (SIZE, ROUTING, AND ELEVATION), PIPING (SIZE, ROUTING, AND ELEVATION), ETC. THE DRAWINGS ARE INTENDED TO PROVIDE THE CONTRACTOR AN INDICATION OF THE SYSTEM INSTALLED IN THE FACILITY TO DATE. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ADJUSTMENTS TO THE DRAWING INFORMATION AS REQUIRED TO MATCH EXISTING FIELD CONDITIONS.
5. ALL ROOF-MOUNTED EQUIPMENT OR PENETRATIONS ASSOCIATED WITH THIS PROJECT ARE TO BE FLASHED BY A LICENSED ROOFING CONTRACTOR. THE ROOFING CONTRACTOR SHALL HAVE EXPERIENCE WITH THE EXISTING ROOFING MEMBRANE. NEW FLASHING MATERIALS SHALL BE INSTALLED TO COMPLY WITH THE MEMBRANE MANUFACTURER'S SPECIFICATIONS OR DETAILS PUBLISHED BY THE NATIONAL ROOFING CONTRACTORS ASSOCIATION WATERPROOFING MANUAL. IN ACCEPTANCE OR REJECTION OF THE WORK, THE OWNER WILL MAKE NO ALLOWANCE FOR LACK OF SKILL ON THE PART OF THE CONTRACTOR.



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SEAL:



BID DOCUMENTS

CONSULTANT:

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PROJECT NOTE

1. CONTRACTOR TO PROVIDE A TEMPORARY 50 GALLON ELECTRIC WATER HEATER, 460V/3Ø/60, 6KW FOR TEMPORARY DOMESTIC HOT WATER. SEE ELECTRICAL DRAWINGS.

BUILDING CODES

- 2012 INTERNATIONAL BUILDING CODE
- 2012 INTERNATIONAL FIRE CODE
- 2012 UNIFORM MECHANICAL CODE
- 2012 INTERNATIONAL ENERGY CONSERVATION CODE
- 2012 UNIFORM PLUMBING CODE
- 2011 NATIONAL ELECTRICAL CODE

DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT

TITLE SHEET

REVISIONS:

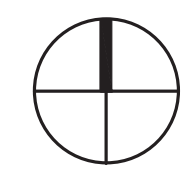
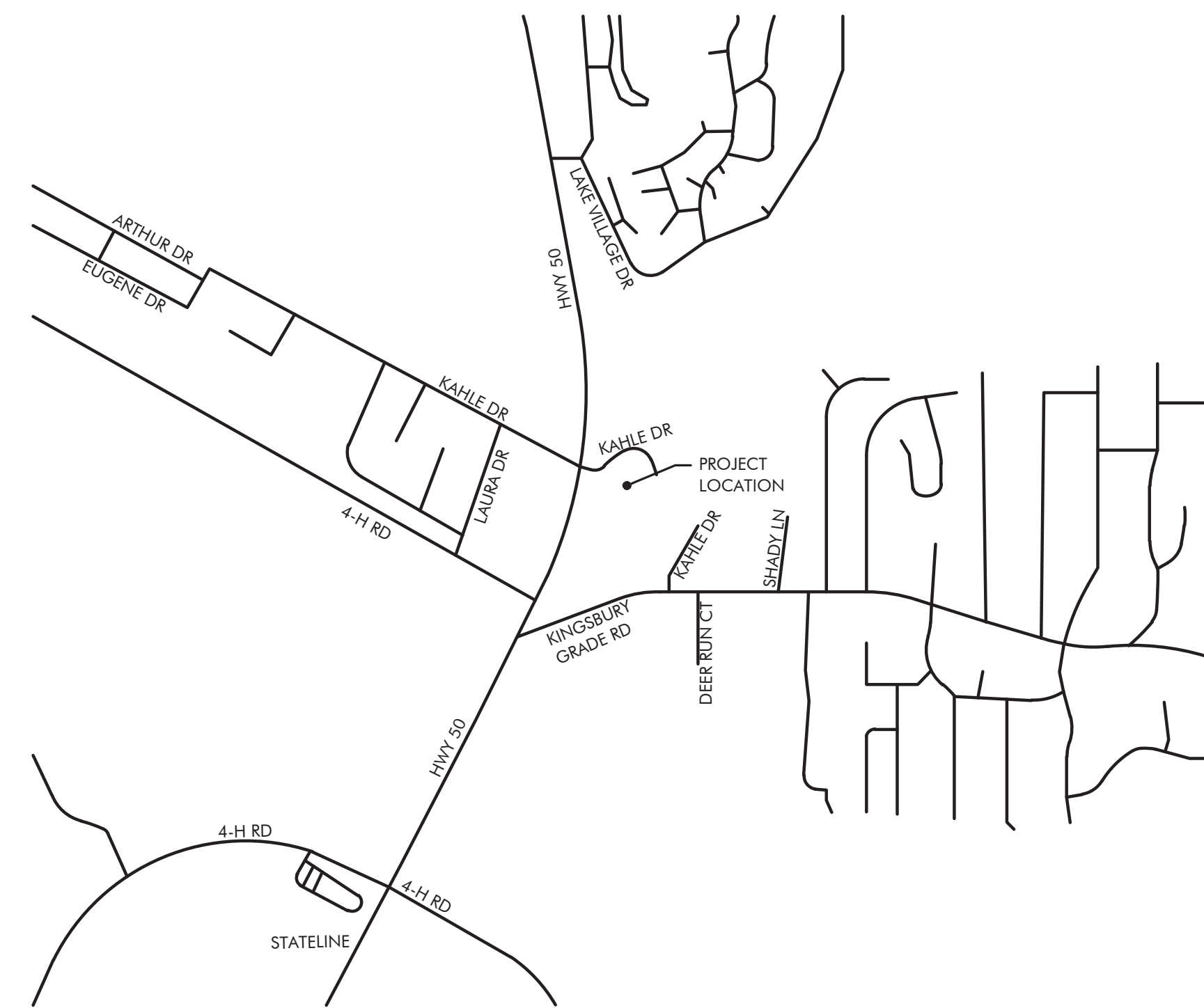
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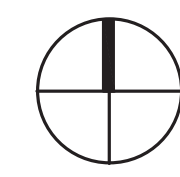
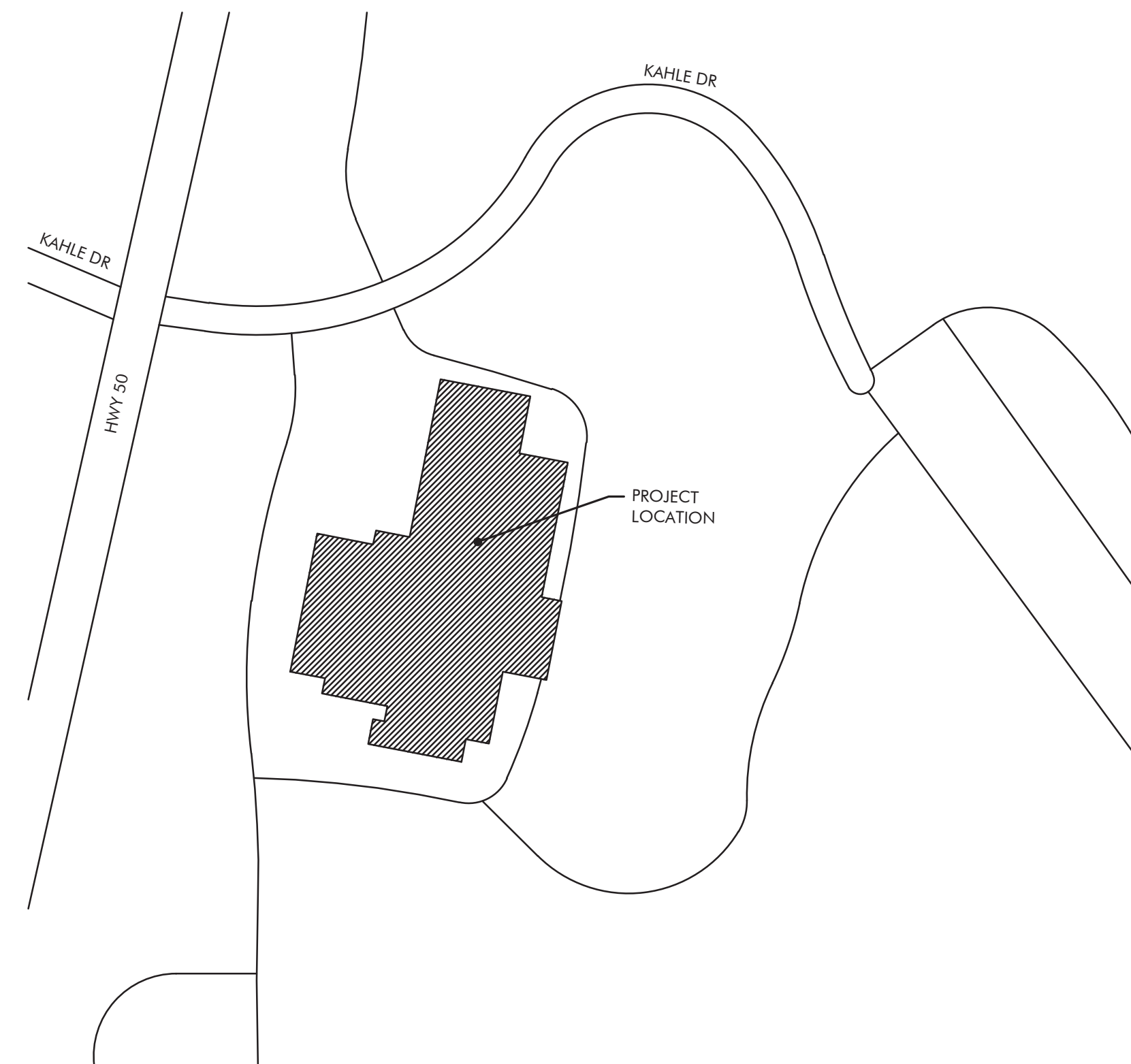
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VICINITY MAP



NO SCALE

LOCATION MAP



NO SCALE

DIRECTORY

OWNER

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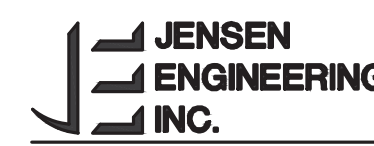
MECHANICAL



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ABBREVIATIONS

ACFM	ACTUAL CUBIC FEET PER MINUTE
AF	AIR FILTER
AFF/AFG	ABOVE FINISHED FLOOR/GRADE
A	AMPERE
APD	AIR PRESSURE DROP
BFF/BFG	BELOW FINISHED FLOOR/GRADE
BHP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNITS PER HOUR
CFM	CUBIC FEET PER MINUTE
COP	COEFFICIENT OF PERFORMANCE
Cv	VALVE FLOW COEFFICIENT
(D)	DEMOLISH
DB,WB	DRY BULB, WET BULB TEMPERATURE
dBa	DECIBELS, A-WEIGHTED MEASUREMENT
DIA	DIAMETER
DN	DOWN
DP	DIFFERENTIAL PRESSURE
EFF	EFFICIENCY
EER	ENERGY EFFICIENCY RATIO
(E)	EXISTING
EAT/LAT	ENTERING/LEAVING AIR TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE
EWI/LWT	ENTERING/LEAVING WATER TEMPERATURE
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
FT	FOOT
FT ²	SQUARE FOOT
FT ³	CUBIC FOOT
GA	GAUGE
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HZ	HERTZ
IN	INCH
IN ²	SQUARE INCH
IN ³	CUBIC INCH
KW	KILOWATT
LBS	POUNDS
LRA	LOCKED ROTOR AMPERES
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
(N)	NEW
NC	NOISE CRITERIA
PPM	PARTS PER MILLION
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
R	REGISTER
RPM	REVOLUTIONS PER MINUTE
SEER	SEASONAL ENERGY EFFICIENCY RATIO
TDH	TOTAL DYNAMIC HEAD
TG	TRANSFER GRILLE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
V	VOLTS
W	WATT
WC/WG	WATER COLUMN/GAUGE

SYMBOL LEGEND

SYMBOL	ABBR.	DESCRIPTION
	SA	SUPPLY AIR
	RA	RETURN AIR
	EA	EXHAUST AIR
	OA	OUTSIDE AIR
		POSITIVE PRESSURE DUCT SECTION - FIRST SIZE IS TOP
		NEGATIVE PRESSURE DUCT SECTION - FIRST SIZE IS TOP
		DUCT SIZE - FIRST SIZE IS SIDE SHOWN
	(L)	LINED DUCT
		FLEXIBLE DUCT
		FLEXIBLE DUCT CONNECTOR
	MVD	MANUAL VOLUME DAMPER
	OBD	OPPOSED BLADE DAMPER
	PBD	PARALLEL BLADE DAMPER
	FD	FIRE DAMPER
	SD	SMOKE DAMPER
	FSD	COMBINATION FIRE/SMOKE DAMPER
		MOTORIZED ACTUATOR
		SPRING WOUND BYPASS TIMER @ 48" AFF
	TSTAT	THERMOSTAT OR TEMPERATURE SENSOR @ 48" AFF
	SD	SMOKE DETECTOR
	CD	CEILING DIFFUSER
	LD	LINEAR DIFFUSER
	SW	SIDE WALL DIFFUSER
	EG/RG	EXHAUST/RETURN GRILLE
	BFP	BACKFLOW PREVENTER
	BV	BALL VALVE
	BFV	BUTTERFLY VALVE
	CV	CHECK VALVE
	FCV	FLOW CONTROL (BALANCE) VALVE
	GV	GATE VALVE
	GBV	GLOBE VALVE
	PRV	PRESSURE REDUCING VALVE
	PTRV	PRESSURE AND TEMPERATURE RELIEF VALVE
	TCV	TEMPERATURE CONTROL VALVE (2-WAY OR 3-WAY)
	TDV	TRIPLE DUTY VALVE
	STR	STRAINER
		UNION
		PIPE BREAK
		PIPE CAP OR PLUG
	ELL	PIPE ELBOW
		PIPE ELBOW DOWN
		PIPE ELBOW UP
		PIPE TEE
		PIPE RISER
		PIPE DROP
		PIPE BRANCH, TOP CONNECTION
		PIPE BRANCH, BOTTOM CONNECTION
	PA	PIPE ANCHOR
		PIPE ALIGNMENT GUIDE
	FLEX	FLEXIBLE PIPE CONNECTOR
		WATER METER
		PRESSURE SENSOR, TEMPERATURE SENSOR WITH WELL
	PT	PRESSURE GAUGE, TEMPERATURE GAUGE
	PT	PRESSURE AND TEMPERATURE TEST PORT
	P	PUMP
	CHS/CHR	CHILLED WATER SUPPLY/RETURN PIPING
	HWS/HWR	HOT WATER SUPPLY/RETURN PIPING
	D	EQUIPMENT OR CONDENSATE DRAIN PIPING
	CW	COLD WATER
	G	LOW PRESSURE GAS PIPING
	DHW	DOMESTIC HOT WATER
	DHW	DOMESTIC HOT WATER RETURN
	FD	FLOOR DRAIN
	FS	FLOOR SINK
	POC	POINT OF CONNECTION
	POD	POINT OF DISCONNECT



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SEAL:



BID DOCUMENTS

CONSULTANT:

DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT

MECHANICAL ABBREVIATIONS,
LEGEND AND, CALCULATIONS

REVISIONS:

REV.	DESCRIPTION	DATE
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DESIGNED BY: CL
CHECKED BY: CL
APPROVED BY: CLR
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GENERATOR REPLACEMENT

MECHANICAL SCHEDULES

REVISIONS:

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APPROVED BY: CLR
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CONDENSING BOILER SCHEDULE

UNIT GENERAL DATA				ELECTRICAL			OUTPUT DATA											
SERVICE	MANUFACTURER	MODEL	OPERATING WEIGHT (LBS)	VOLTS/Ø/Hz	AMPS	INPUT (BTUH)	OUTPUT AT ELEVATION (BTUH)	FLUID	FLUID FLOW (GPM)	LWT (°F)	EWT (°F)	MAX WPD (FT WC)	VENT SIZE (IN)	VENT MATERIAL	COMBUSTION AIR SIZE (IN)	COMBUSTION AIR MATERIAL	UNIT OPTION	
1	BUILDING	AERCO	BMK1000 GWBF-USA-9SA	400	120/1/60	13	1,000,000	790,000	40% GLYCOL	55	180	150	5	8	AL29-4C	N/A	N/A	A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S
2	BUILDING	AERCO	BMK1000 GWBF-USA-9SA	400	120/1/60	13	1,000,000	800,000	40% GLYCOL	55	180	150	5	8	AL29-4C	N/A	N/A	A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S

GENERAL NOTES:

- DESCRIPTION: FULLY MODULATING, STAINLESS STEEL HEAT EXCHANGER, CONDENSING GAS FIRED BOILER.
- OUTPUT IS SHOWN FOR 6,300 FT ELEV.
- OUTPUT OF BOILER ACCOUNTS FOR 40% PROPYLENE GLYCOL
- COMBUSTION AIR AND FLUE TO BE SIZED PER MANUFACTURERS CALCULATION. INDICATED COMBUSTION AIR AND FLUE SIZES ARE SHOWN FOR SPECIFIED BOILER ONLY. CONTRACTOR TO INCLUDE MANUFACTURERS FLUE CALCULATION WITH SUBMITTALS.
- SPECIFIED BOILER REQUIRES AN ALTITUDE DERATE OF 0.92 AT THE SPECIFIED DESIGN CONDITION, AS TESTED PER THIRD PARTY TESTING IN ACCORDANCE TO ANSI Z21.13. IF SPECIFIED BOILER IS NOT PROVIDED, CONTRACTOR TO PROVIDE LETTER FROM MANUFACTURER INDICATING SUBSTITUTE BOILER HAS BEEN THIRD PARTY TESTED IN ACCORDANCE TO ANSI Z21.13 OR CONTRACTOR IS TO PROVIDE BOILER WITH THE SPECIFIED OUTPUT. LARGER INPUT MAY REQUIRE LARGER GAS PIPING, FLUE, AND COMBUSTION AIR.

OPTIONS/FEATURES:

A. MODULATING BURNER W/20:1 FIRING TURN DOWN RATIO.
B. SPARK IGNITION.
C. ADJUSTABLE HIGH LIMIT AND MANUAL RESET TEMPERATURE CONTROL.
D. FLOW SWITCH AND LOW WATER CUTOFF SWITCH, SO THAT BOILER IS COMPLIANT WITH CSD-1 AND NEVADA BOILER CODE.
E. ASME RATED PRESSURE RELIEF VALVE, SET AT 75 PSI.
F. SEQUENTIAL AND DIAGNOSTIC CONTROL PANEL.
G. DIGITAL DISPLAY WITH ALARM AND STATUS ON A TOUCH SCREEN.

H. VENT MATERIAL SHALL BE SINGLE WALL AL29-4C STAINLESS STEEL.
I. 86% OPERATING THERMAL EFFICIENCY AT 150°F RETURN WATER TEMPERATURE AND 100% INPUT
J. CONTACTS ON ANY FAILURE.
K. MANUFACTURERS CONDENSATE NEUTRALIZATION KIT.
L. 0-10 VDC BUILDING MANAGEMENT SYSTEM INPUT.
M. FACTORY SYSTEM HEADER SENSOR WITH IMMERSION WELL.
N. FACTORY TRAINING AND AUTHORIZED START-UP.

O. PRIMARY BOILER PUMP RELAY MOUNTED AND WIRED TO ENERGIZE BOILER INJECTING PUMP.
P. INTEGRATED BOILER DRAIN VALVE.
Q. MANUFACTURERS BOILER CONTROLLER WITH LEAD/LAG CONTROLS, SEE CONTROL DRAWINGS.
R. PROVIDE FACTORY LEVEL TRAINING FOR (3) DOUGLAS COUNTY TECHNICIANS
S. MANUFACTURERS BACNET CONTROLLER

EQUIPMENT SCHEDULE

CFT 1 CHEMICAL FEED TANK
NU-CALGON MODEL 20L FLAT BOTTOM, MILD STEEL, 2 GALLON MICROMET CHEMICAL FEEDER WITH 3/4" QUARTER TURN CAP AND TWO 3/4" NPT PORTS. SEE BOILER PIPING DIAGRAM FOR CONFIGURATION. CONTRACTOR TO ADD CHEMICAL WATER FEEDER AS NEEDED. OPER. WT.: 50 LBS.

BFP 1 BACKFLOW PREVENTER
BACKFLOW PREVENTER - WILKINS 3/4" LEAD-FREE REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY MODEL #975XL-SAG (OR APPROVED EQUAL) WITH 3/4" AIR GAP ASSEMBLY AND WYE-STRAINER THE VALVE SHALL BE LEAD-FREE BRONZE MAIN BODY, BRONZE ACCESS COVER, SEAT RINGS AND ALL INTERNAL POLYMERS SHALL BE NSF LISTED NORYL AND SEAT DISC ELASTOMERS SHALL BE SILICONE. THE ASSEMBLY SHALL BE RATED TO 180°F AND SUPPLIED WITH FULL PORT BALL VALVES. THE CHECK VALVE SHALL BE ACCESSIBLE FOR MAINTENANCE WITHOUT REMOVING THE PRESSURE RELIEF VALVE. AIR GAP SHALL BE INCLUDED IN INSTALLATION. ASSEMBLY MUST BE APPROVED BY FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.

GFS 1 GLYCOL FEED STATION
AXIOM INDUSTRIES MODEL MF300 PACKAGE GLYCOL FEED STATION (OR APPROVED EQUAL). THE PACKAGE SHALL INCLUDE 55 GALLON POLYETHYLENE TANK WITH COVER, PUMP SUCTION HOSE WITH INLET STRAINER, PRESSURE PUMP WITH THERMAL CUT-OUT, INTEGRATED CHECK-VALVE, 10 FOOT LONG CORD AND PLUG, MANUAL DIVERTER VALVE, AND OPTIONAL LOW LEVEL ALARM PANEL WITH REMOTE MONITORING DRY CONTACTS AND SELECTABLE AUDIBLE ALARM. ELEC. 115/60/1 50 WATTS OPERATING WEIGHT: 175 LBS.

HX 1 DOMESTIC WATER HEAT EXCHANGER
THERMAFLO ENGINEERING MODEL TH750V-636-DWEN DOUBLE WALL DOMESTIC WATER HEAT EXCHANGER. HEAT EXCHANGER SHALL BE SUITABLE FOR CONVERTING 13 GPM OF DOMESTIC COLD WATER AT 40°F TO 115°F WITH 40 GPM OF HEATING HOT WATER AT A SUPPLY TEMPERATURE OF 155 DEGREES. HEAT EXCHANGER TO BE CONSTRUCTED OF ASME 150 PSIG STAMPED SHELL, 316L STAINLESS STEEL SHELL MATERIAL OF CONSTRUCTION, DOUBLE WALL COPPER TUBE BUNDLE, 304 STAINLESS STEEL TUBE SHEET MATERIAL, AND MANUFACTURERS VERTICAL STAND. HEAT EXCHANGER SHALL BE PROVIDED AND INSTALLED WITH THE FOLLOWING OPTIONS:
- MODULATING HEATING HOT WATER CONTROL VALVE WITH 1 SECOND CONTROL SEQUENCE TO MODULATE DOMESTIC HOT WATER OUTLET TEMPERATURE OF 115°F
- UL LISTED DIGITAL MICROPROCESSOR PID TEMPERATURE CONTROLLER PANEL IN A NEMA 4 RATED ENCLOSURE WITH INDICATOR OF POWER ON, HIGH LIMIT. CONTROLLER SHALL HAVE 4-20ma TEMPERATURE OUTPUT TO BUILDING CONTROL SYSTEM AND DRY CONTACTS FOR ALARMS.
- STAINLESS STEEL INTRA-TANK CIRCULATION PUMPS
- HIGH TEMPERATURE DUMP SOLENOID VALVE
- BUILDING CONTROL BACNET INTERFACE

PROVIDE AND INSTALL MANUFACTURERS REPRESENTATIVE START UP AND PERFORMANCE TESTING

OPERATING WEIGHT: 600 LBS
ELECTRICAL: 120V/1/60Hz, FLA: 7

CP 1 DOMESTIC HOT WATER RETURN PUMP
CIRCULATION PUMP - B&G "ECOCIRC" 19-16 CIRCULATORS' MODEL #6050B2004LF DOMESTIC HOT WATER CIRCULATING PUMP WITH STAINLESS STEEL BODY AND POLYPROPYLENE IMPELLER. PUMP MOTOR TO BE ELECTRONICALLY COMMUTATED MOTOR (ECM). PUMP TO BE NSF-61 "LEAD-FREE COMPLIANT". PUMP CAPACITY SHALL BE 7.0 GPM AGAINST TOTAL HEAD PRESSURE OF 10 FEET. INSTALL COMPLETE WITH MANUFACTURERS TIMER AND AQUASTAT TO TURN PUMP ON AT 105°F AND OFF AT 120°F. PUMP TO BE UL LISTED AND CSA APPROVED. ELECTRICAL: 115V/1Ø/60Hz, 60 WATTS

PUMP SCHEDULE

UNIT GENERAL DATA																						
SERVICE	MANUFACTURER	MODEL	OPERATING WEIGHT (LBS)	SIZE	TYPE	FLOW (GPM)	TDH (FT)	FLUID	IMP. DIA. (IN)	MIN EFF. (%)	SUCTION (IN)	DISCH. (IN)	TRIPLE DUTY VALVE MODEL	TRIPLE DUTY VALVE SIZE (IN)	TRIPLE DUTY PRESS DROP (PSI)	SUCTION DIFFUSER MODEL	FRAME SIZE	MOTOR		UNIT OPTION		
HWP-1	HEATING HOT WATER SYSTEM	B&G	e-80	400	2.5x2.5x9.5C	INLINE	110	50	WATER	7.375	57	2.5	2.5	3DS-2½S	2½	1.5	DC-3	184JM	5	460/3/60	1,800	A,B,C,D
HWP-2	HEATING HOT WATER SYSTEM	B&G	e-80	400	2.5x2.5x9.5C	INLINE	110	50	WATER	7.375	57	2.5	2.5	3DS-2½S	2½	1.5	DC-3	184JM	5	460/3/60	1,800	A,B,C,D

INFORMATION FOR INLINE PUMPS SCHEDULED ABOVE

GENERAL

- DESCRIPTION: MAINTENANCE FREE, INLINE, CLOSE COUPLED, VERTICAL OR HORIZONTAL POSITION, CAST IRON CENTRIFUGAL PUMP.

PUMP

- PUMP SHALL BE CLASS 30 CAST IRON WITH FLANGE CONNECTIONS.
- IMPELLER SHALL BE CAST BRONZE, DYNAMICALLY BALANCED, KEYS TO THE SHAFT, AND SECURED BY A LOCKING CAPSCREW.

MOTOR

- PREMIUM EFFICIENCY.
- MOTOR SHALL MEET NEMA SPECIFICATIONS AND BE NON-OVERLOADING FOR ENTIRE PUMP CURVE.

OPTIONS FOR PUMPS SCHEDULED ABOVE

A. ODP PREMIUM EFFICIENCY MOTOR
B. PROVIDE WITH METRAFLEX VANEFLEX MODEL VF (OR APPROVED EQUAL) STAINLESS STEEL FLEX CONNECTOR ON SUCTION SIDE OF PUMP.
C. PROVIDE WITH METRAFLEX VANEFLEX MODEL VF90R2503 (OR APPROVED EQUAL) STAINLESS STEEL FLEX CONNECTOR WITH REDUCING ELBOW ON DISCHARGE SIDE OF ELBOW.
D. SILICONE CARBIDE SEAL.
E. MANUFACTURERS INSIDE UNITIZED SEAL CONSISTING OF ETHYLENE-PROPYLENE COPOLYMER (EPR), SILICON CARBIDE, AND STAINLESS STEEL SUITABLE FOR USE IN GLYCOL APPLICATION.
F. MANUFACTURERS MODEL NUMBER P2004181 VFD PUMP CONTROLLER, TO BE SHIPPED LOOSE AND FIELD INSTALLED ON WALL WHERE INDICATED.
G. PROVIDE AND INSTALL MANUFACTURERS SHAFT GROUNDING RING
H. EXTERNAL FLUSH LINE.

INFORMATION FOR VARIABLE FREQUENCY DRIVES (VFD) PRE-PROGRAMMED BY MANUFACTURER FOR HWP-1, HWP-2, CTP-1, AND CTP-2

- PROVIDE WITH MANUFACTURERS INTERNAL 5% DC OUTPUT SWINGING CHOKE LINE REACTORS
- PROVIDE AND INSTALL BACNET COMMUNICATION CARD
- MANUFACTURERS CIRCUIT BREAKER TYPE DISCONNECT
- FACTORY PRE-PROGRAMMED FOR VARIABLE SENSING OPERATION
- PROVIDE AND INSTALL GROUNDING RING ON MOTOR SHAFT
- VFD IS TO SHIP LOOSE AND MOUNTED ON UNISTRUT STAND SEPARATELY FROM PUMP

AIR/DIRT SEPARATOR SCHEDULE

UNIT GENERAL DATA				FLOW DATA					
SERVICE	MANUFACTURER	MODEL	OPERATING WEIGHT (LBS)	OPERATING FLOW (GPM)	MAXIMUM FLOW (GPM)	PRESS. DROP (FT WC)	INLET (IN)	OUTLET (IN)	REMARKS
1	HEATING HOT WATER	WESSELS	WVA-3	200	110	144	5	3	3

GENERAL NOTES:

1. DESCRIPTION: ASME STAMPED, COALESCING TYPE AIR ELIMINATOR AND DIRT SEPARATOR WITH REMOVABLE BOTTOM.

DESIGN PRESSURE AND TEMPERATURE

- AIR/DIRT SEPARATOR SHALL BE RATED FOR 125 PSIG @ 250°F

CONSTRUCTION

- SHELL SHALL BE CONSTRUCTED OF STEEL WITH FLANGED PIPE CONNECTIONS.
- UNIT SHALL BE PAINTED WITH ENAMEL PAINT.
- UNIT SHALL BE CAPABLE OF HEAVIER THAN WATER, UNDISSOLVED SEDIMENT SEPARATION OF AT LEAST 30 MICRONS.
- UNIT SHALL HAVE AN AUTOMATIC AIR VENT AT THE TOP OF THE SHELL.
- COALESCING MEDIUM SHALL BE STAINLESS STEEL.
- UNIT SHALL HAVE A BLOW DOWN VALVE AND SKIM VALVE.

EXPANSION TANK SCHEDULE

UNIT GENERAL DATA												
SERVICE	MANUFACTURER	MODEL	OPERATING WEIGHT (LBS)	TANK VOLUME (GALLONS)	MINIMUM ACCEPT. VOLUME (GALLONS)	OPERATING PRESSURE (PSI)			OPERATING TEMP (°F)	ESTIMATED SYSTEM VOLUME (GALLONS)	REMARKS	
1	HEATING HOT WATER	WESSELS	NLA 300	900	79	70	25	65	12.6	40	200	410

GENERAL NOTES:

DESIGN PRESSURE AND TEMPERATURE

- HEATING HOT WATER EXPANSION TANK TO BE REMOVABLE BLADDER TYPE, PRE-CHARGED, THERMAL EXPANSION TANK FOR HYDRONIC SYSTEMS.

CONSTRUCTION

- TANK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION VII OF THE ASME BOILER AND PRESSURE VESSEL CODE AND STAMPED 150 PSI WORKING PRESSURE.

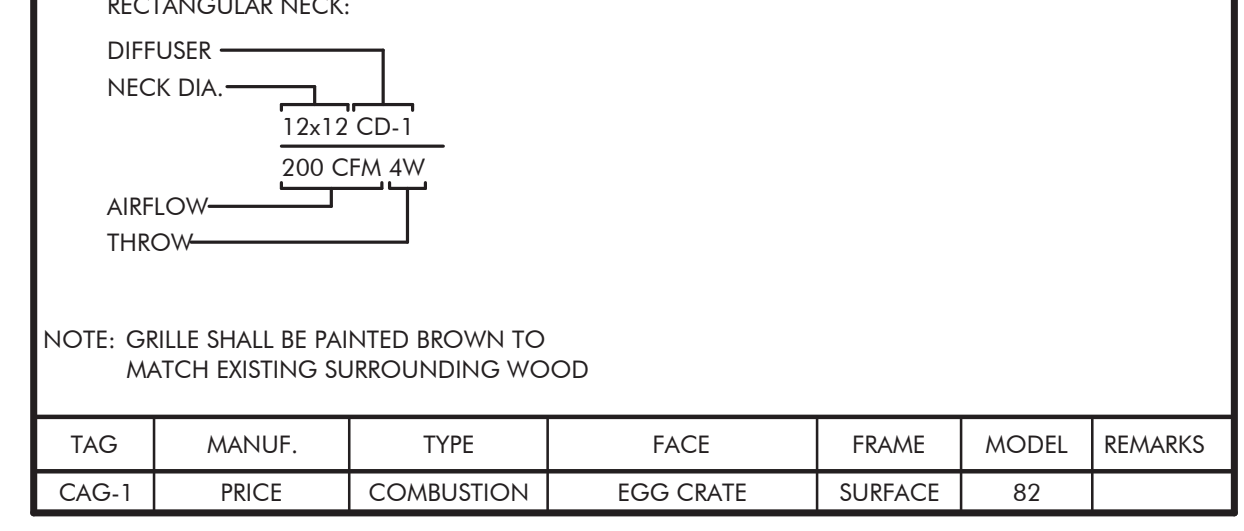
TANK

- UNIT TO BE DESIGNED FOR 150 PSI WORKING PRESSURE AND 240°F WORKING TEMPERATURE.
- TANK SHALL HAVE A BOTTOM NPT STAINLESS STEEL SYSTEM CONNECTION AND A .302" 32 CHARGING VALVE CONNECTION (STANDARD TIRE VALVE) TO FACILITATE THE ON-SITE CHARGING OF THE TANK TO MEET SYSTEM REQUIREMENTS.

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE CONNECTION	SIZE	DESCRIPTION
ET-2	COLD WATER	3/4"	EXPANSION TANK - WESSELS MODEL TXA-50 PRE-CHARGED THERMAL EXPANSION TANK. TANK MINIMUM ACCEPTANCE VOLUME SHALL BE 12 GALLONS AND PRESET FACTORY PRESSURE SHALL BE 55 PSI. TANKS SHALL BE ASME CODE SECTION VIII, DIV. 1-U STAMPED AND HAVE A RATED MAXIMUM WORKING PRESSURE OF 150 PSI AND MAXIMUM RATED TEMPERATURE OF 240°F. TANK SHALL BE SUITABLE FOR USE ON POTABLE WATER SYSTEM. ELECTRICAL REQUIREMENTS: NONE. OPERATING WEIGHT: 100 LBS.

AIR DISTRIBUTION SCHEDULE





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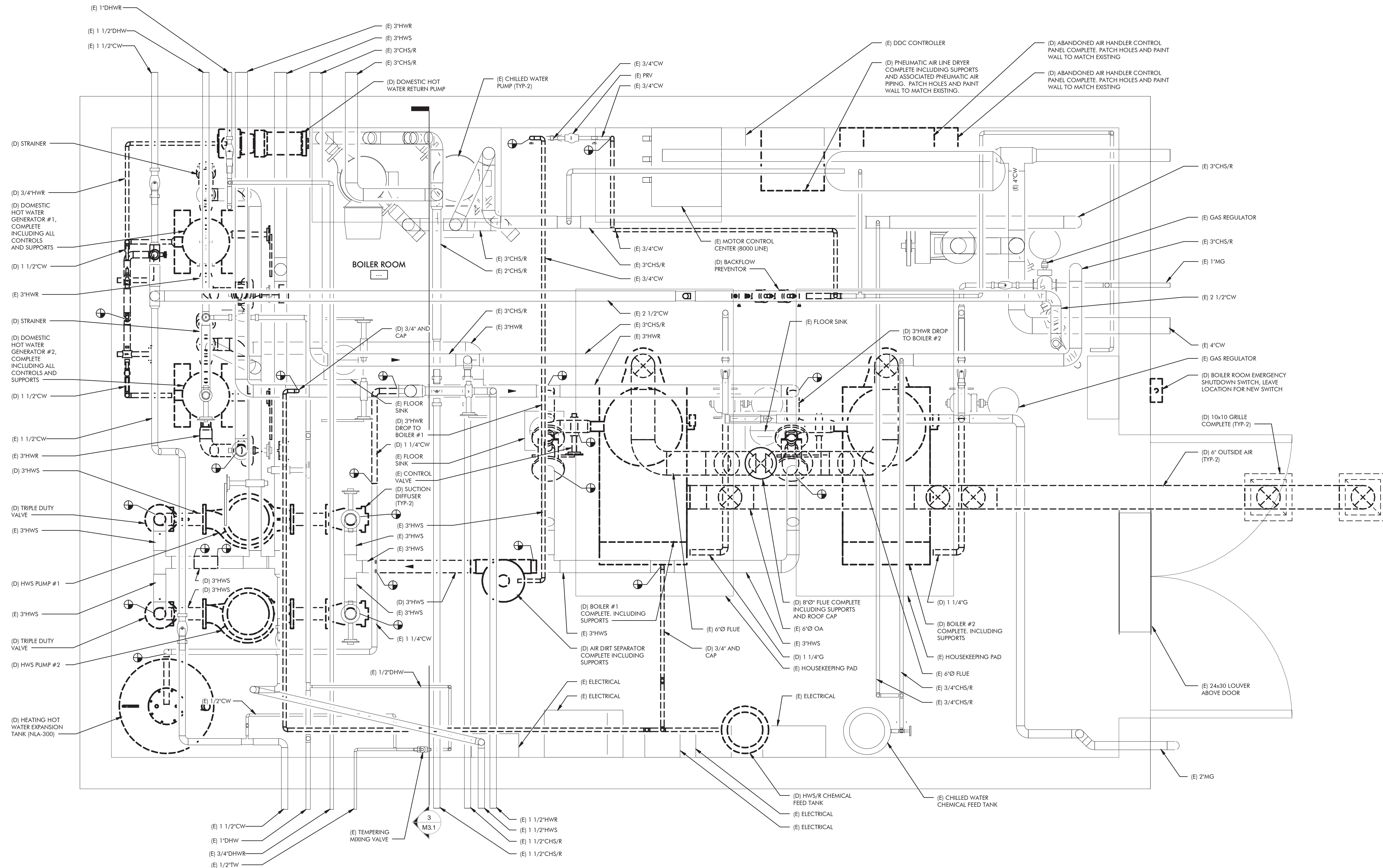
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A MECHANICAL DEMOLITION FLOOR PLAN
M1.1 SCALE: 1" = 1'-0"

DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT
MECHANICAL DEMOLITION FLOOR PLAN

REVISIONS:

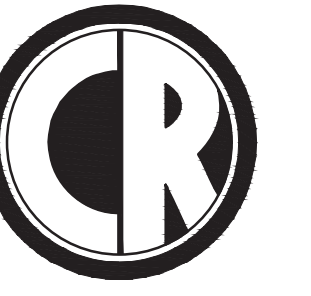
REV.	DESCRIPTION	DATE

DRAWN BY: MB
DESIGNED BY: CL
CHECKED BY: CL
APPROVED BY: CLR
DATE: 01/29/19
PROJECT NO: 123918

SHEET NUMBER:

M1.1

PLOT DATE:



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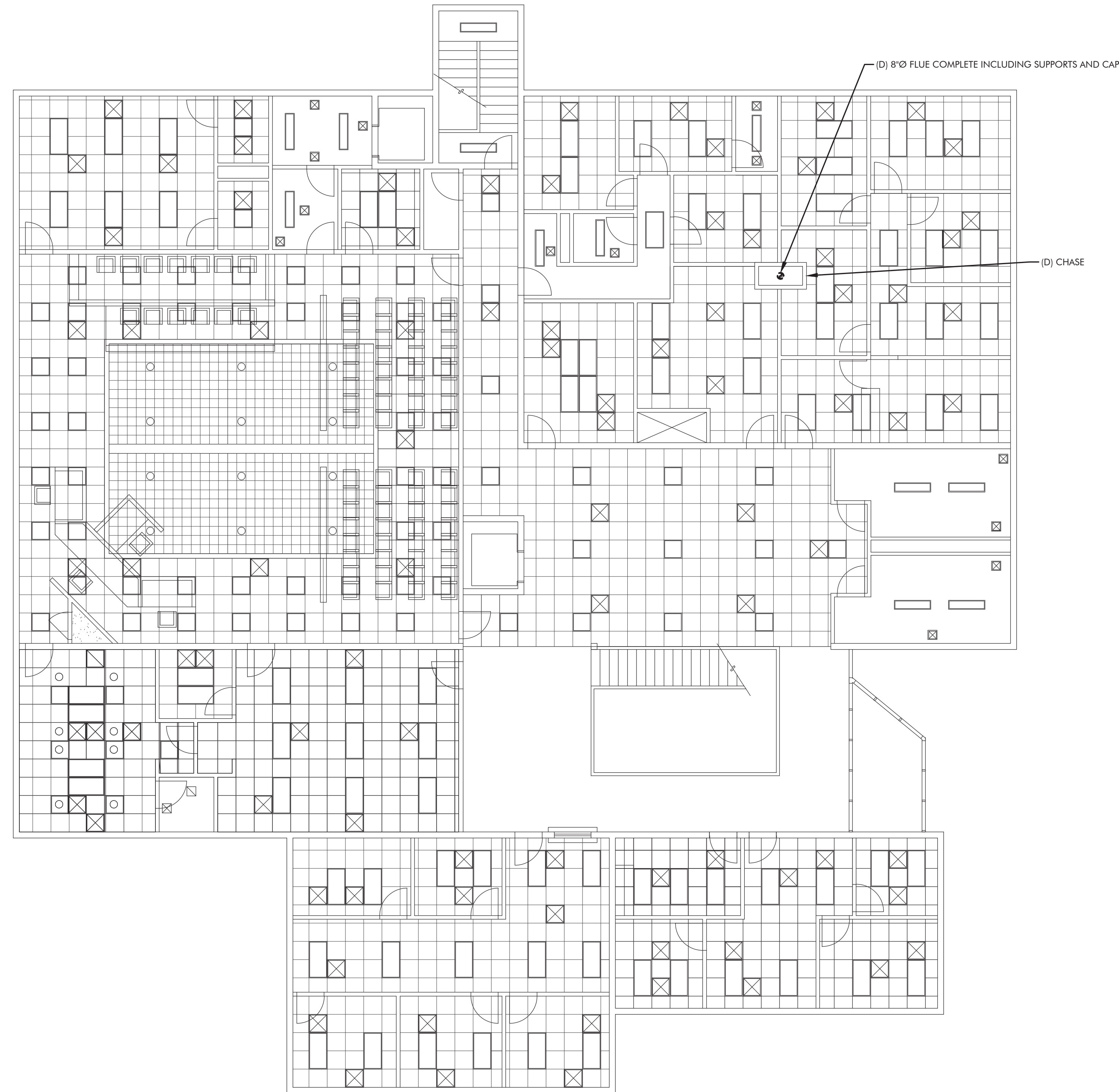
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DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT

MECHANICAL
DEMOLITION 2ND FLOOR
PLAN

REVISIONS:

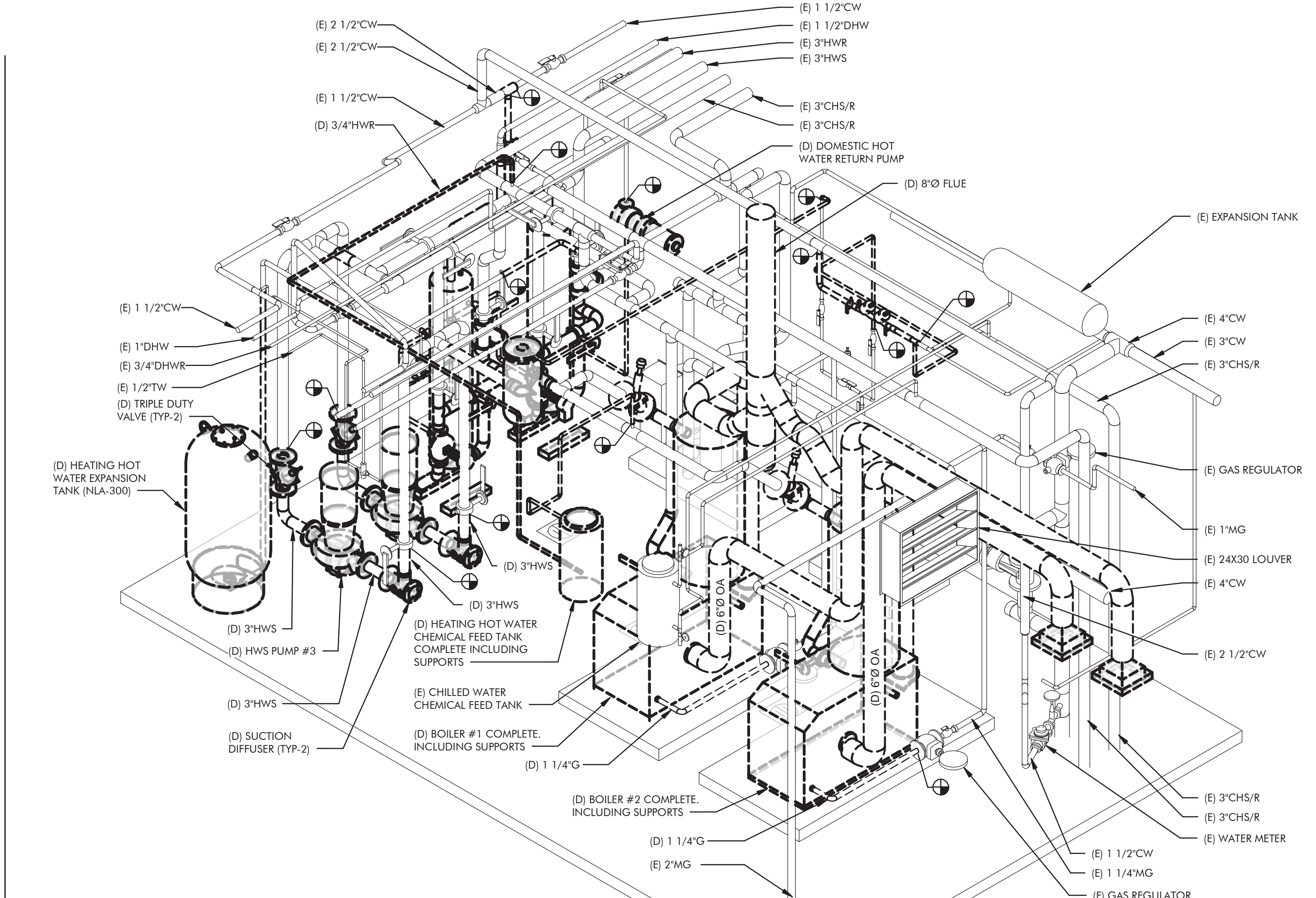
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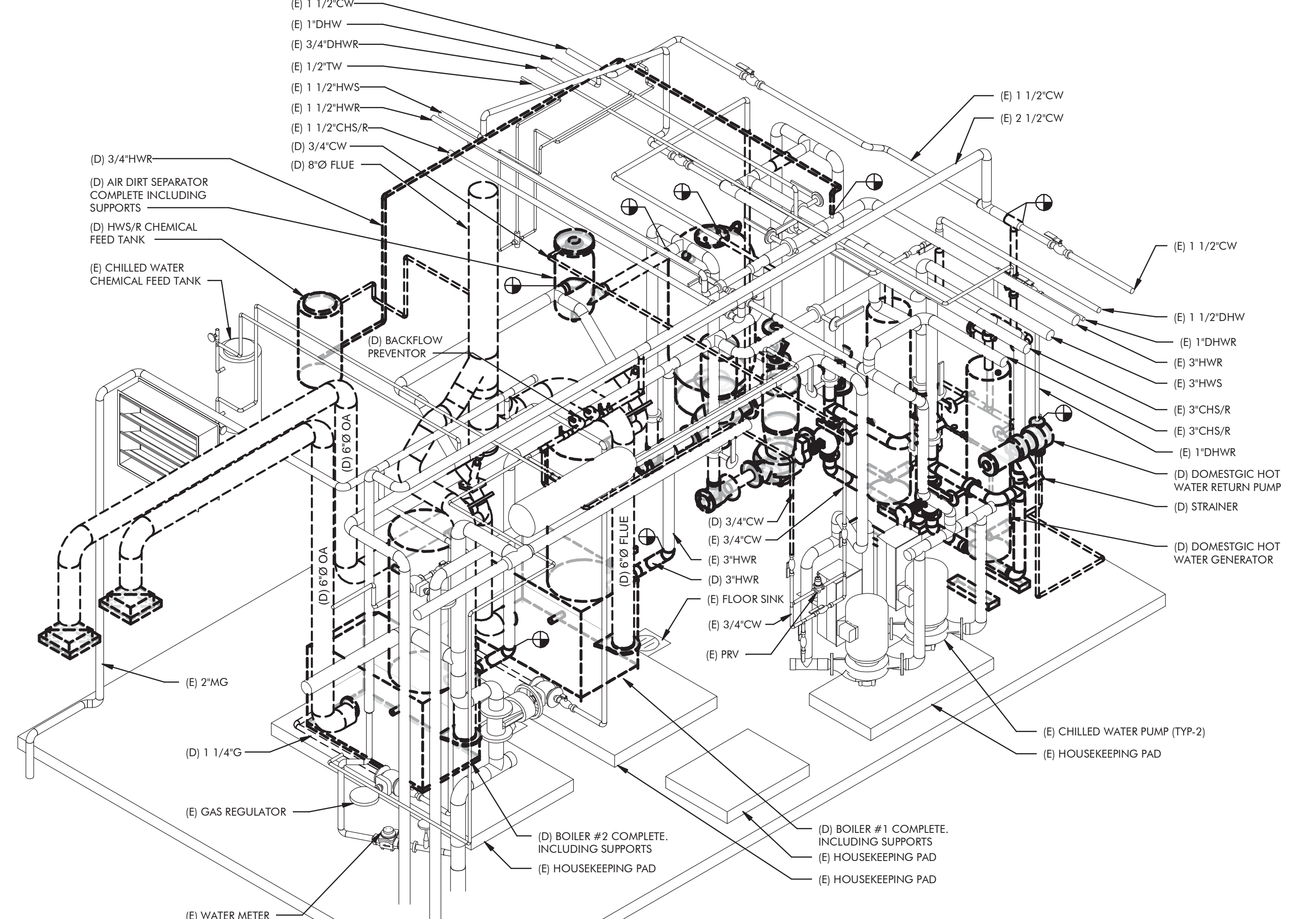
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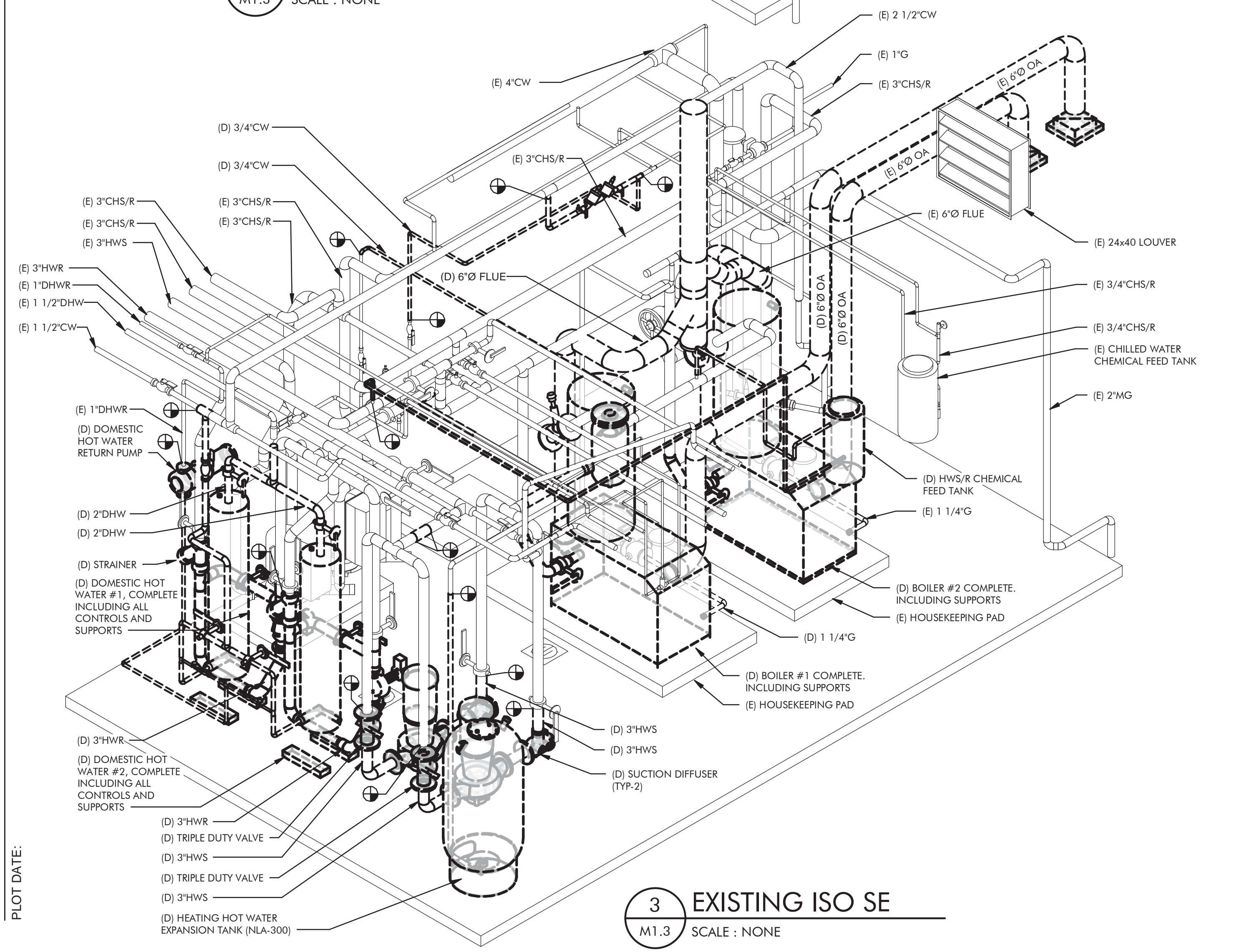
 **MECHANICAL DEMOLITION 2ND FLOOR PLAN** 
SCALE: 1/2"=1'-0" 



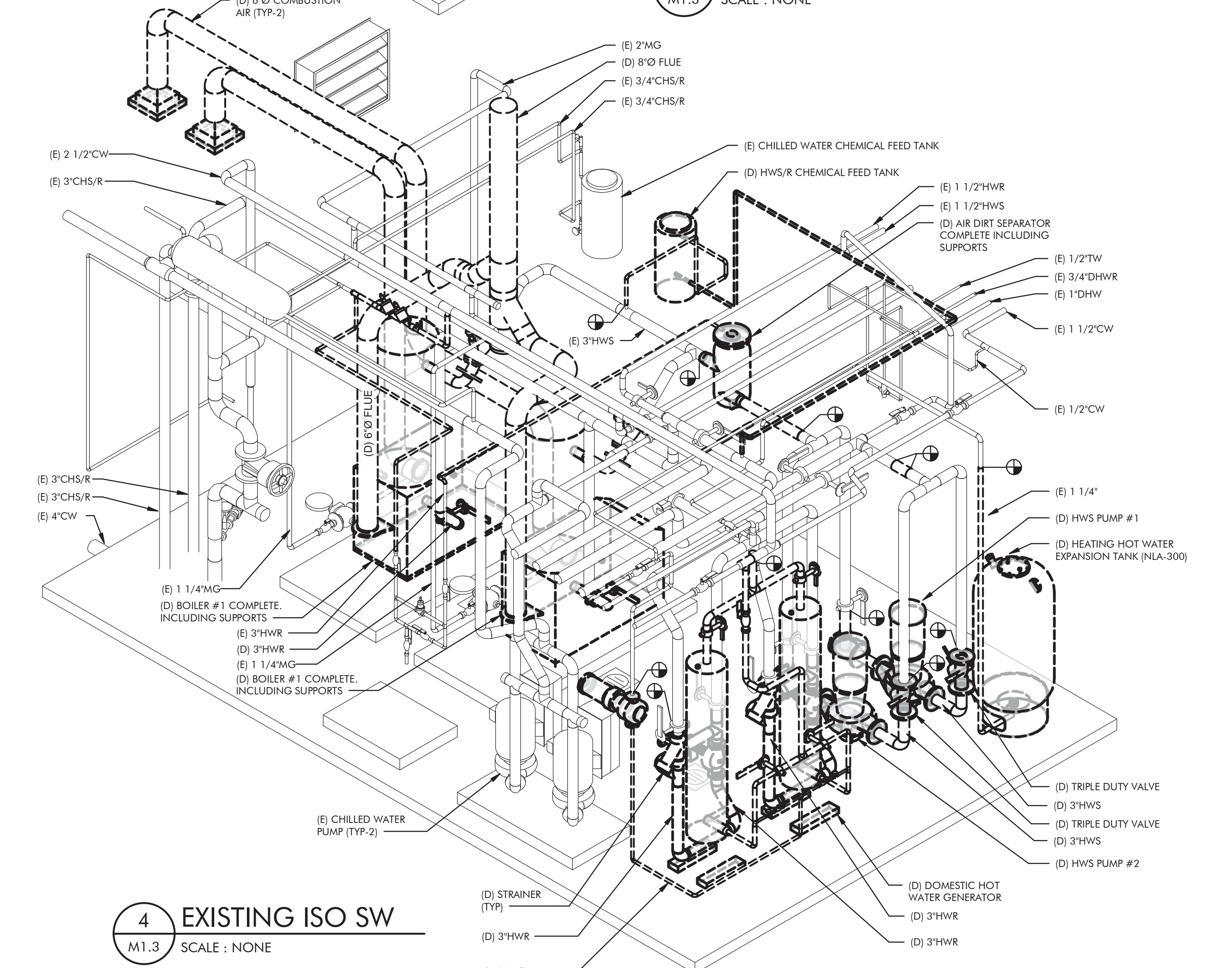
1 EXISTING ISO NE
M1.3 SCALE : NONE



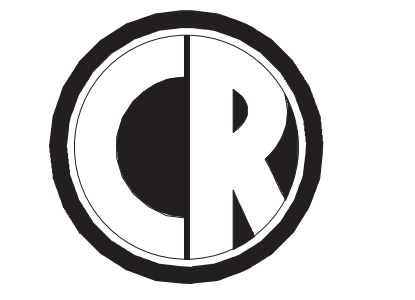
2 EXISTING ISO NW
M1.3 SCALE : NONE



3 EXISTING ISO SE
M1.3 SCALE : NONE



4 EXISTING ISO SW
M1.3 SCALE : NONE



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BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT
MECHANICAL DEMOLITION ISOMETRICS

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PROJECT NO: 123918
SHEET NUMBER:

M1.3

PLOT DATE:



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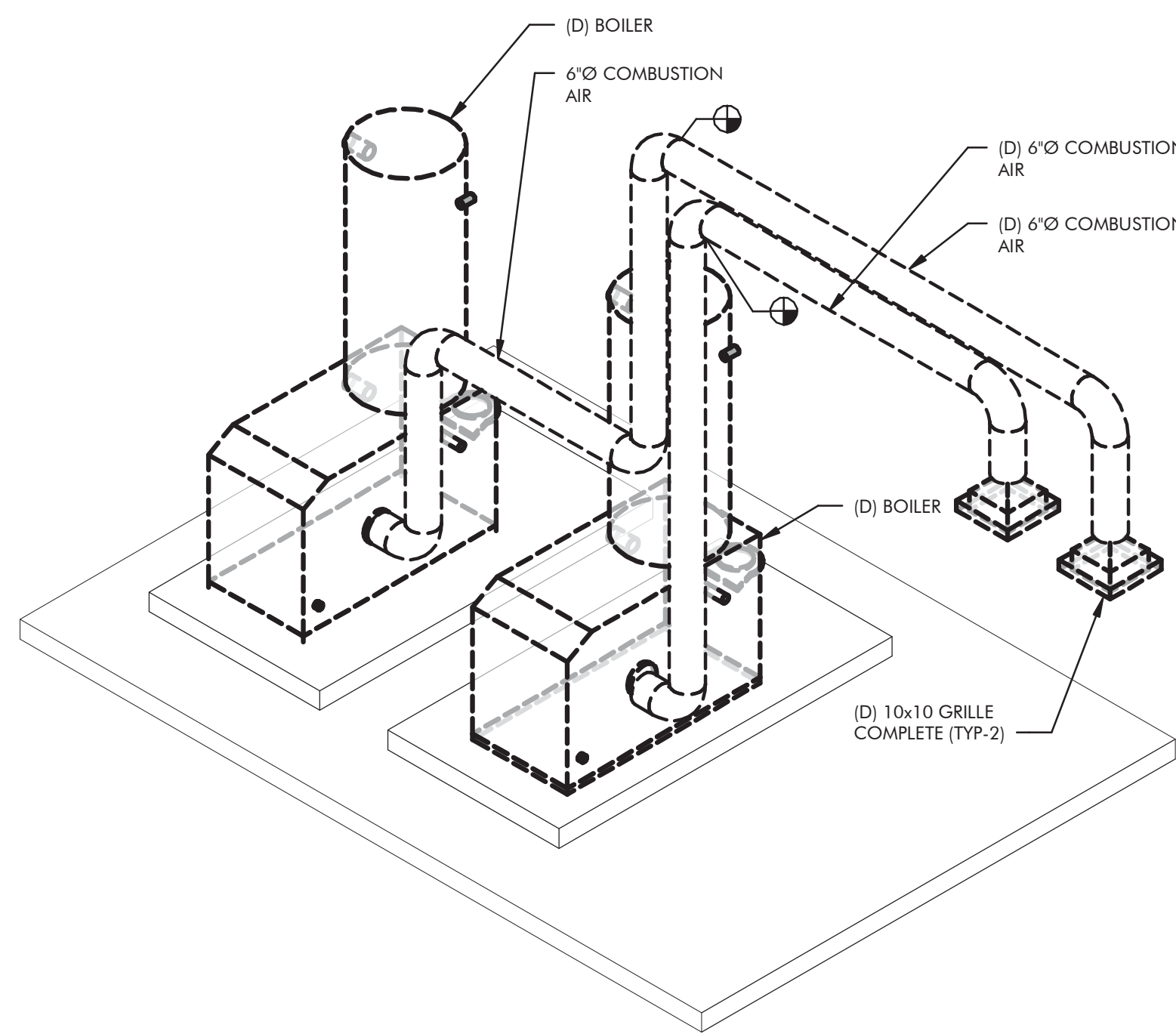
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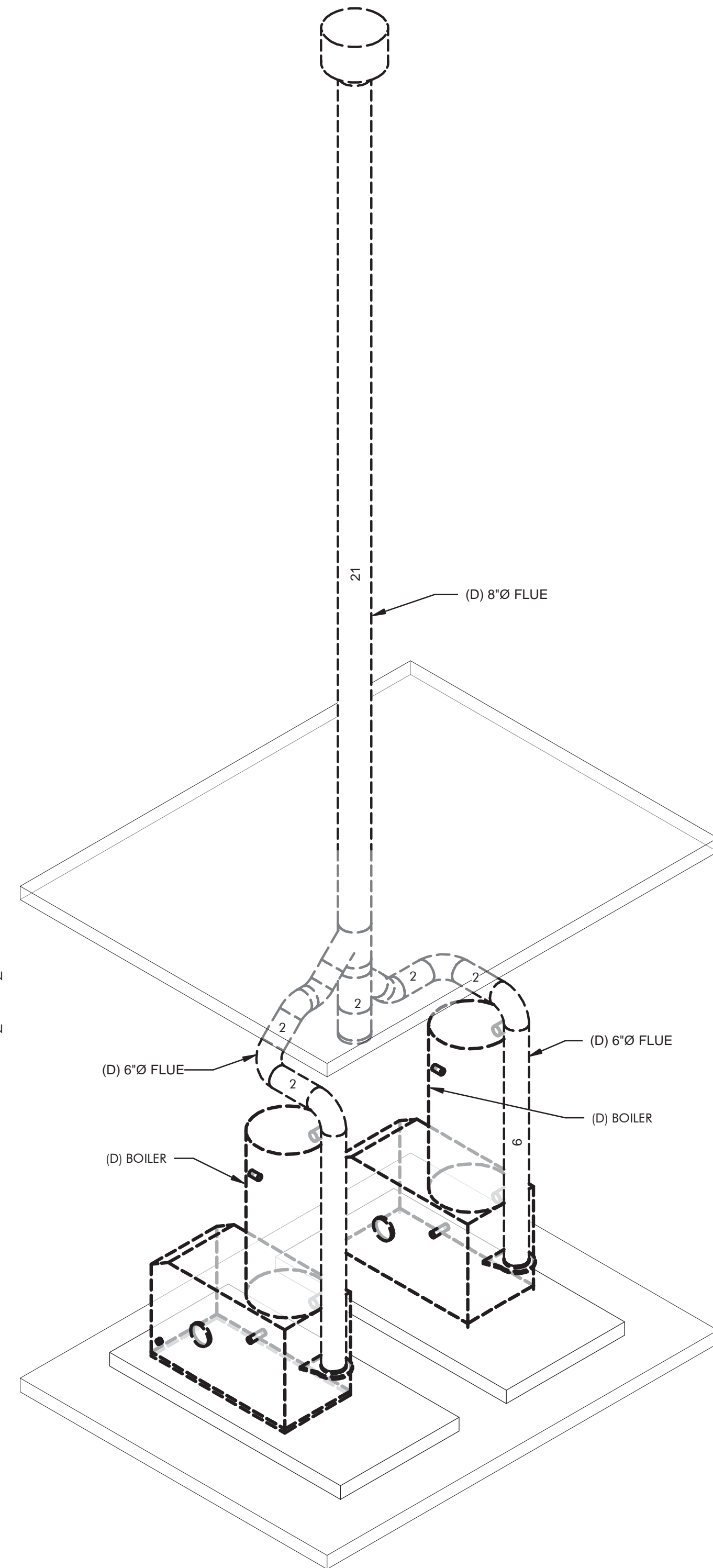


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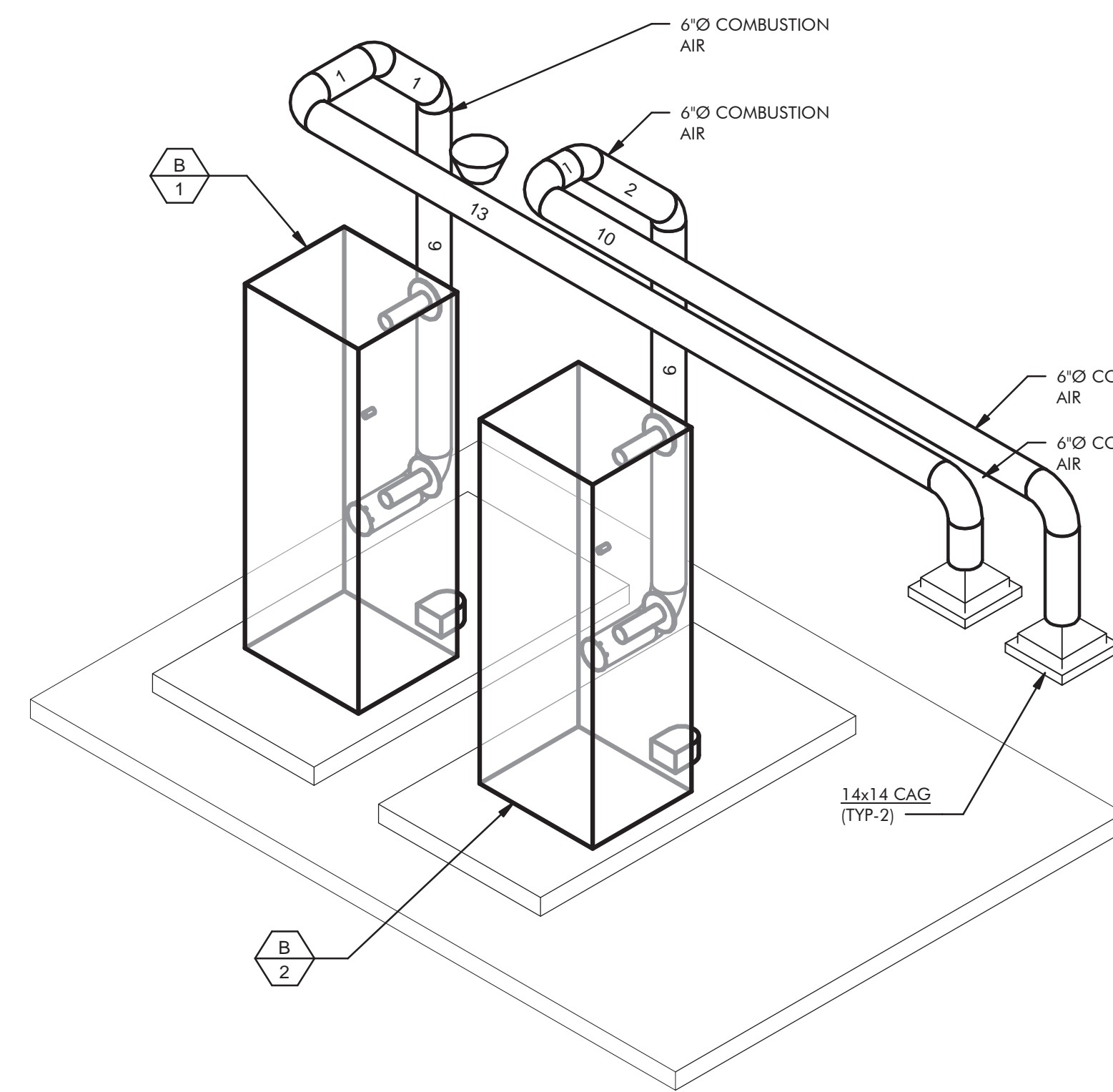
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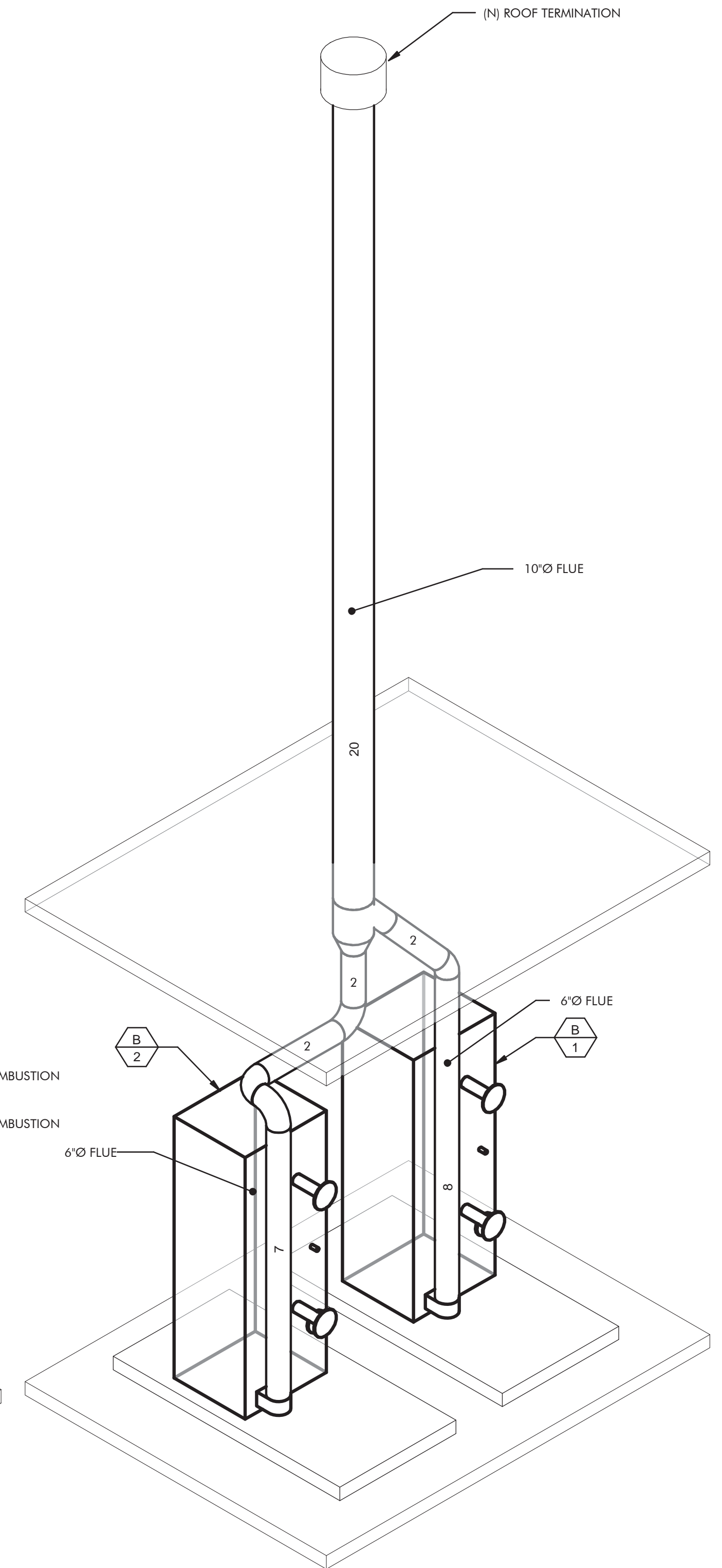
1 COMBUSTION AIR DEMOLITION ISOMETRIC
M1.4 SCALE : NONE



2 FLUE DEMOLITION ISOMETRIC
M1.4 SCALE : NONE



3 NEW COMBUSTION AIR ISOMETRIC
M1.4 SCALE : NONE



4 NEW FLUE ISOMETRIC
M1.4 SCALE : NONE

DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT

MECHANICAL DUCT LENGTH ISOMETRICS

REVISIONS:

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SHEET NUMBER:

M1.4

PROJECT NOTE

- CONTRACTOR TO PROVIDE A TEMPORARY 50 GALLON ELECTRIC WATER HEATER, 460V/3Ø/60, 6kw FOR TEMPORARY DOMESTIC HOT WATER, SEE ELECTRIC DRAWINGS.



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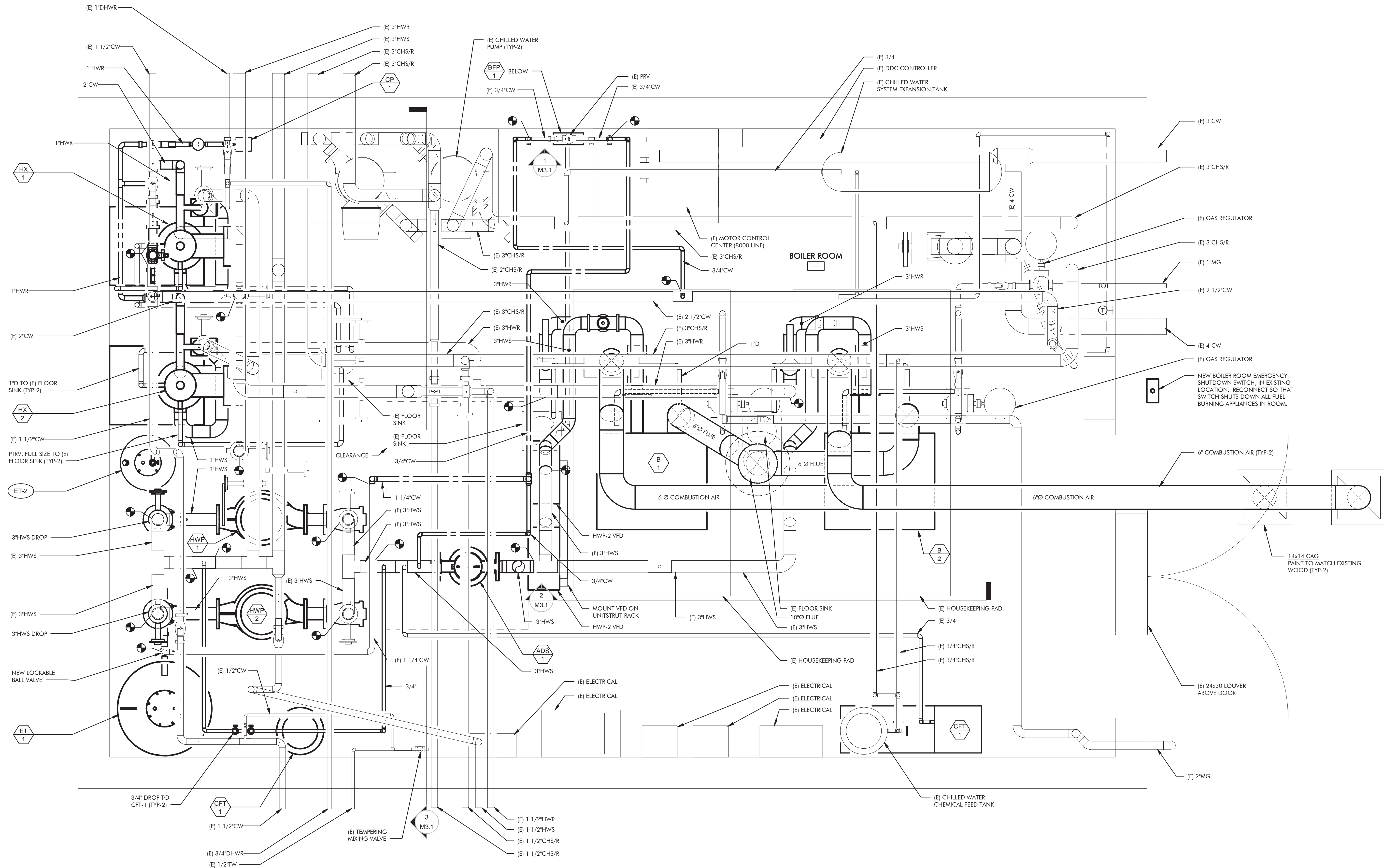
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A MECHANICAL FLOOR PLAN
M2.1 SCALE: 1" = 1'-0"

DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT
MECHANICAL FLOOR PLAN

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SHEET NUMBER:

M2.1

PLOT DATE:

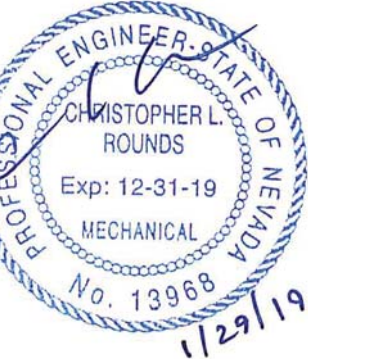


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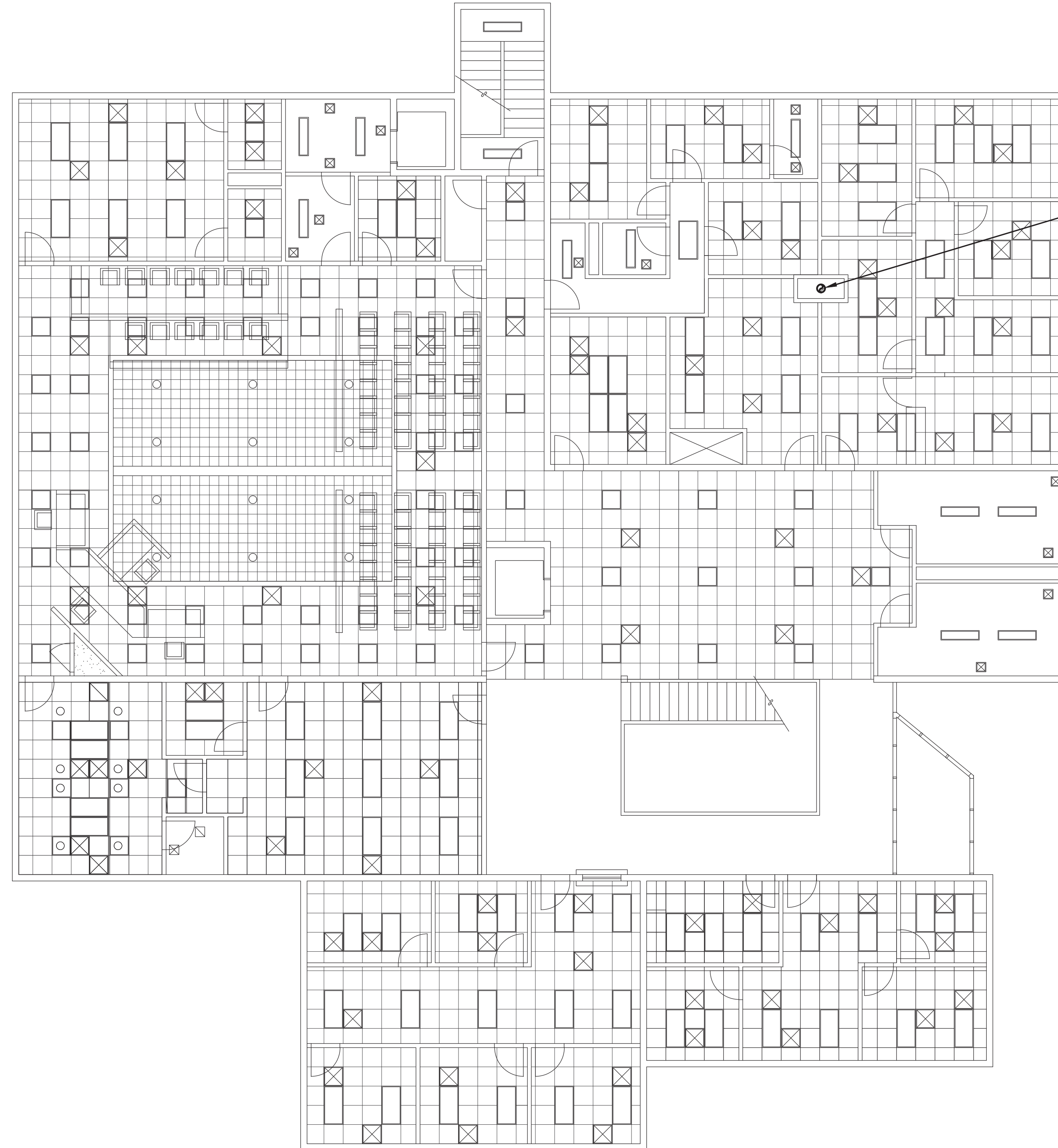
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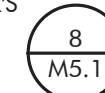


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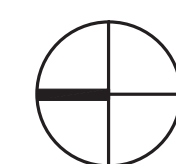
CONSULTANT:



(N) 10"Ø FLUE, IN EXISTING CHASE. ENLARGE EXISTING OPENING AS NEEDED, PROVIDE AND INSTALL NEW SUPPORT, SNOW DIVERTER, ROOF FLASHING AND MANUFACTURERS ROOF TERMINATION OUTLET



W:\2018\123918\dwg\123918_M2.2_MECH_2ND_FLR.dwg
1/29/2019 11:22 AM By: Moses Borjesson



MECHANICAL 2ND FLOOR PLAN

SCALE: 1/8"=1'-0"



DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT

MECHANICAL 2ND FLOOR
PLAN

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SHEET NUMBER:

M2.2



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DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT

MECHANICAL ISOMETRICS

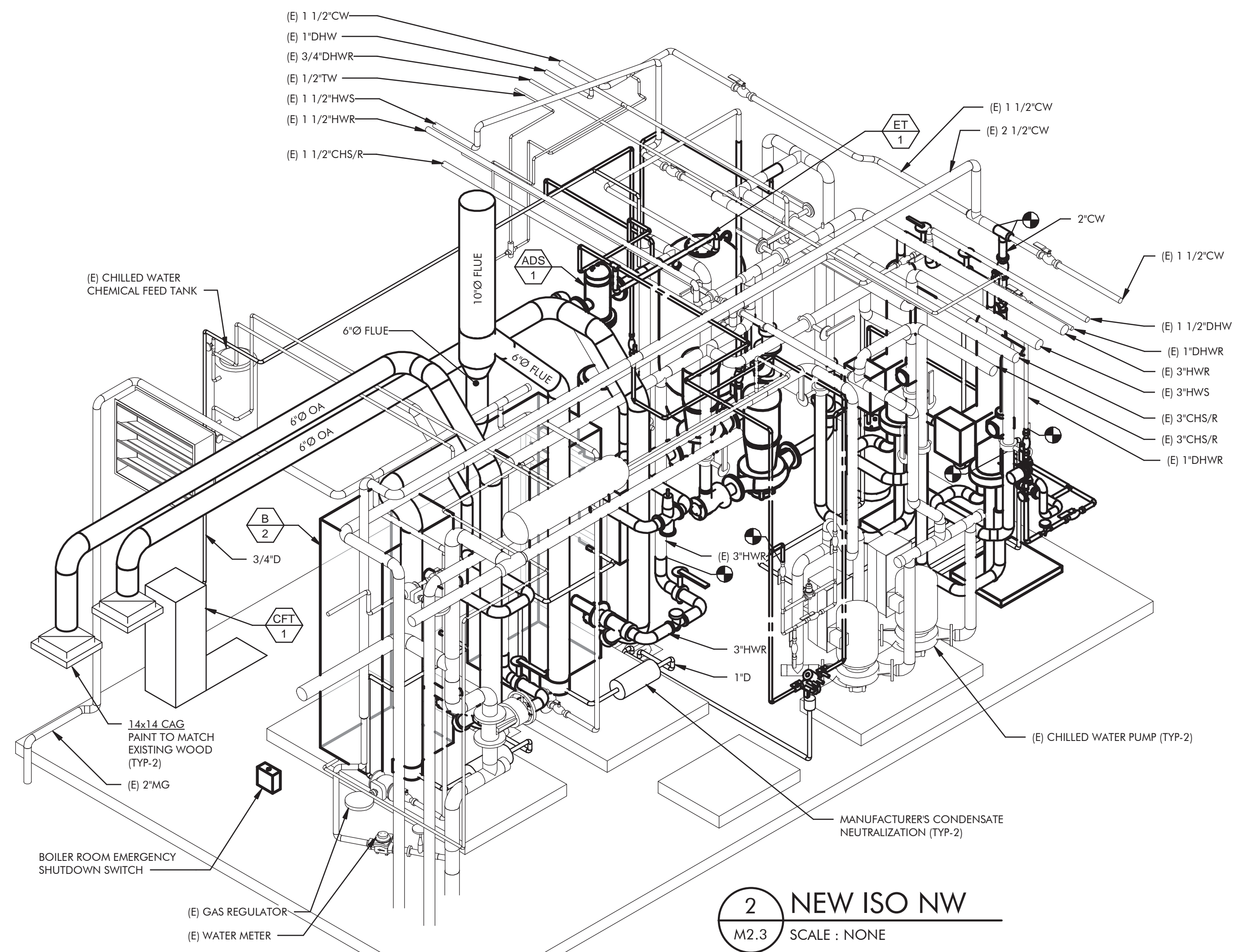
REVISIONS:

REV.	DESCRIPTION	DATE

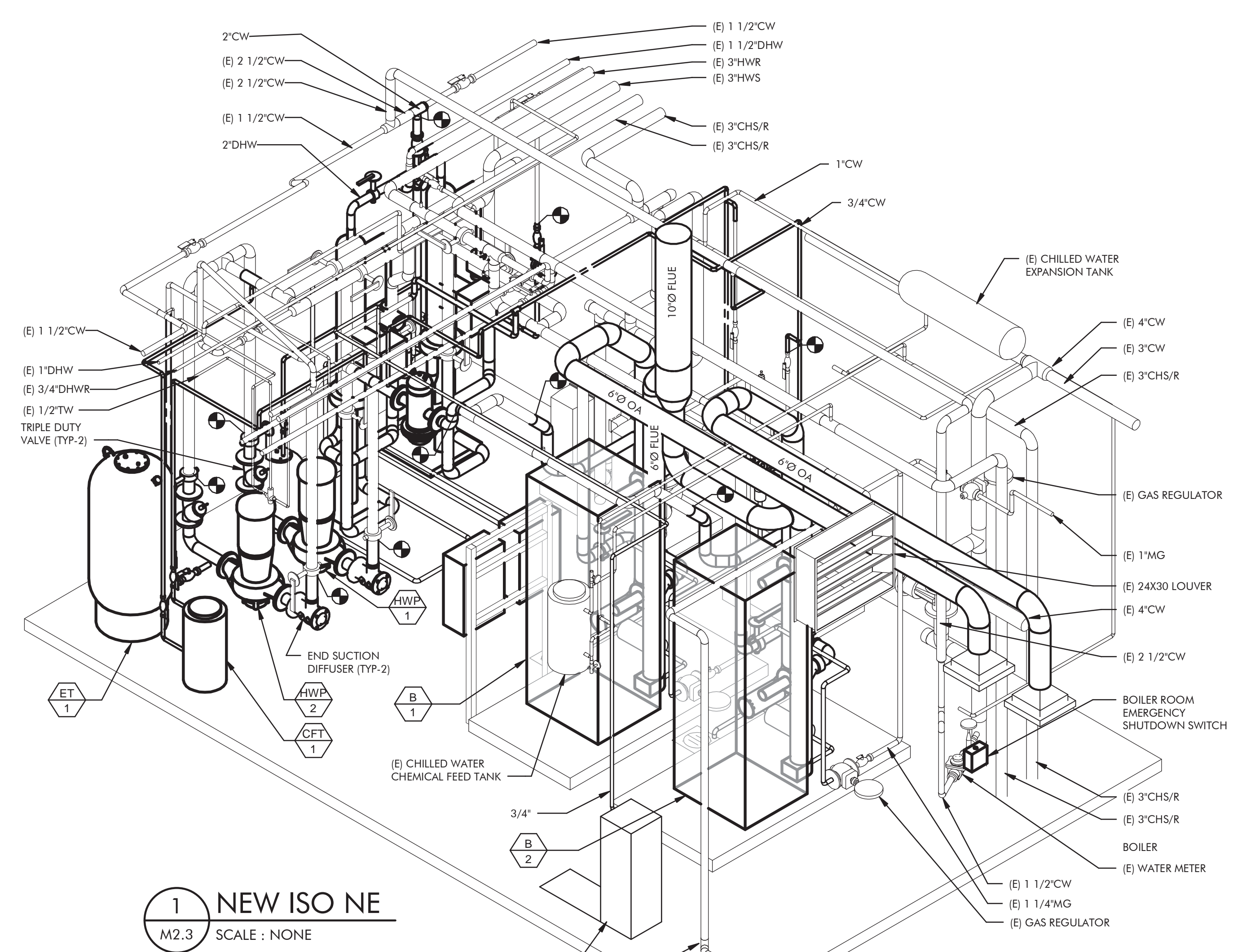
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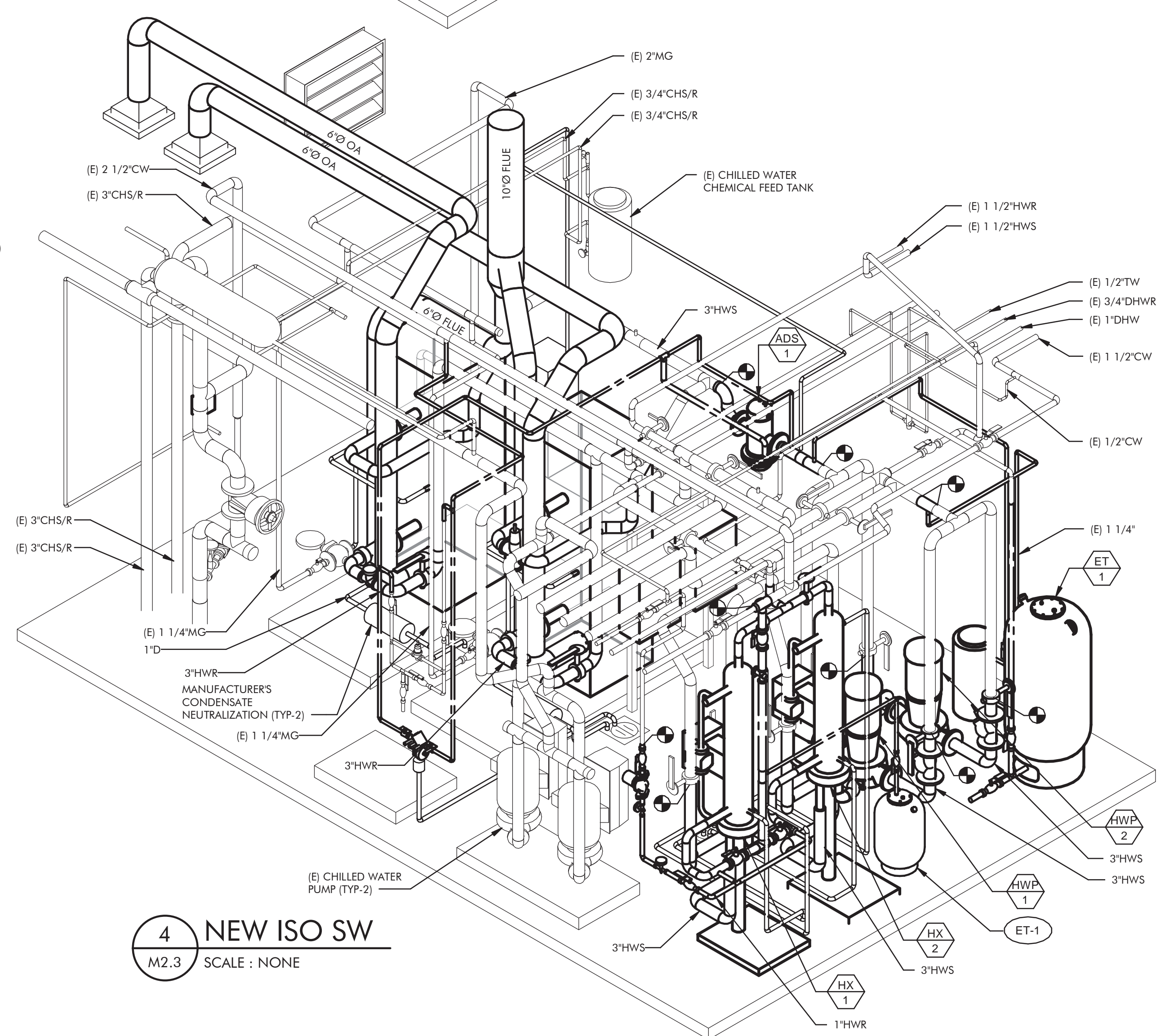
M2.3



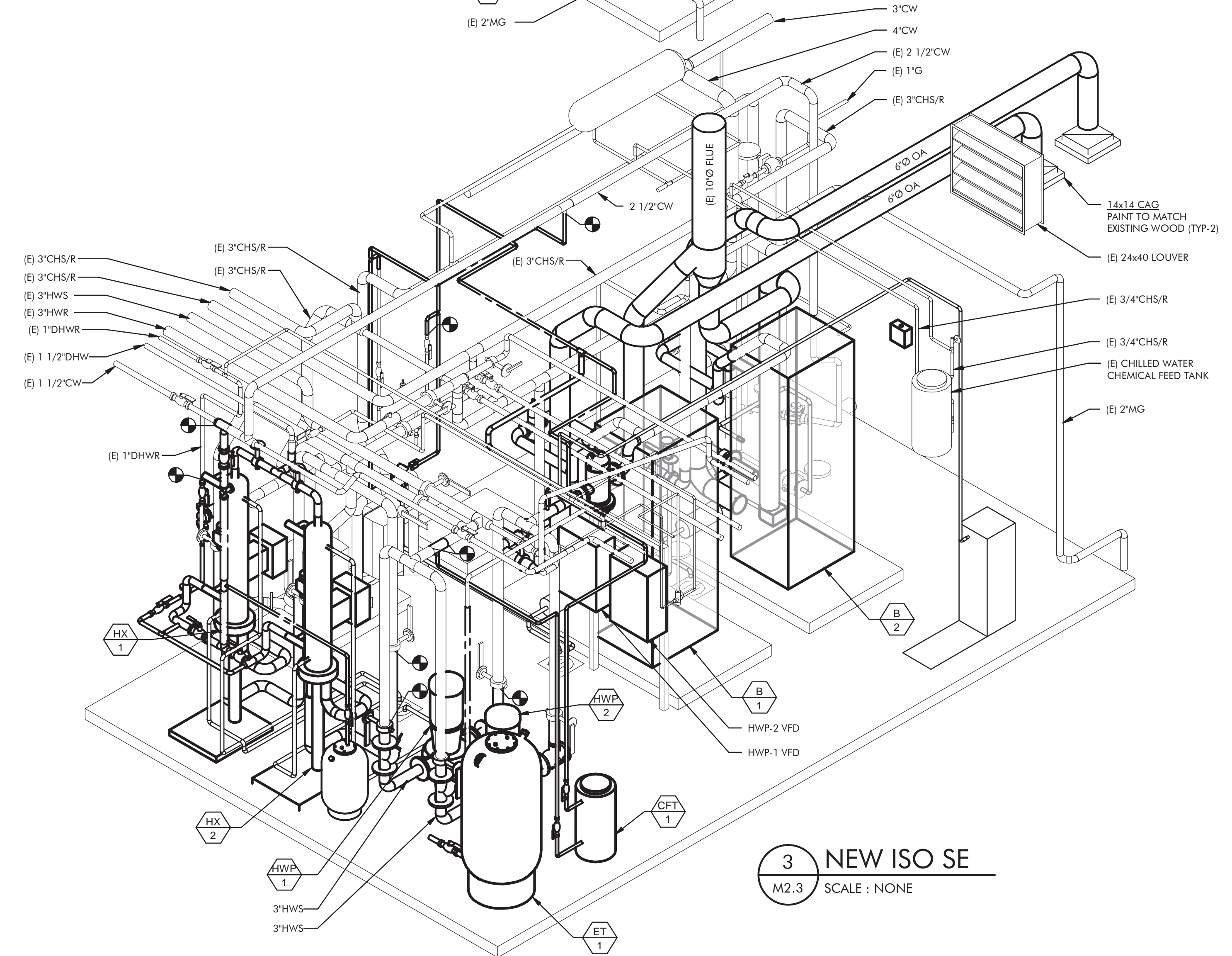
2 NEW ISO NW
M2.3 SCALE : NONE



1 NEW ISO NE
M2.3 SCALE : NONE

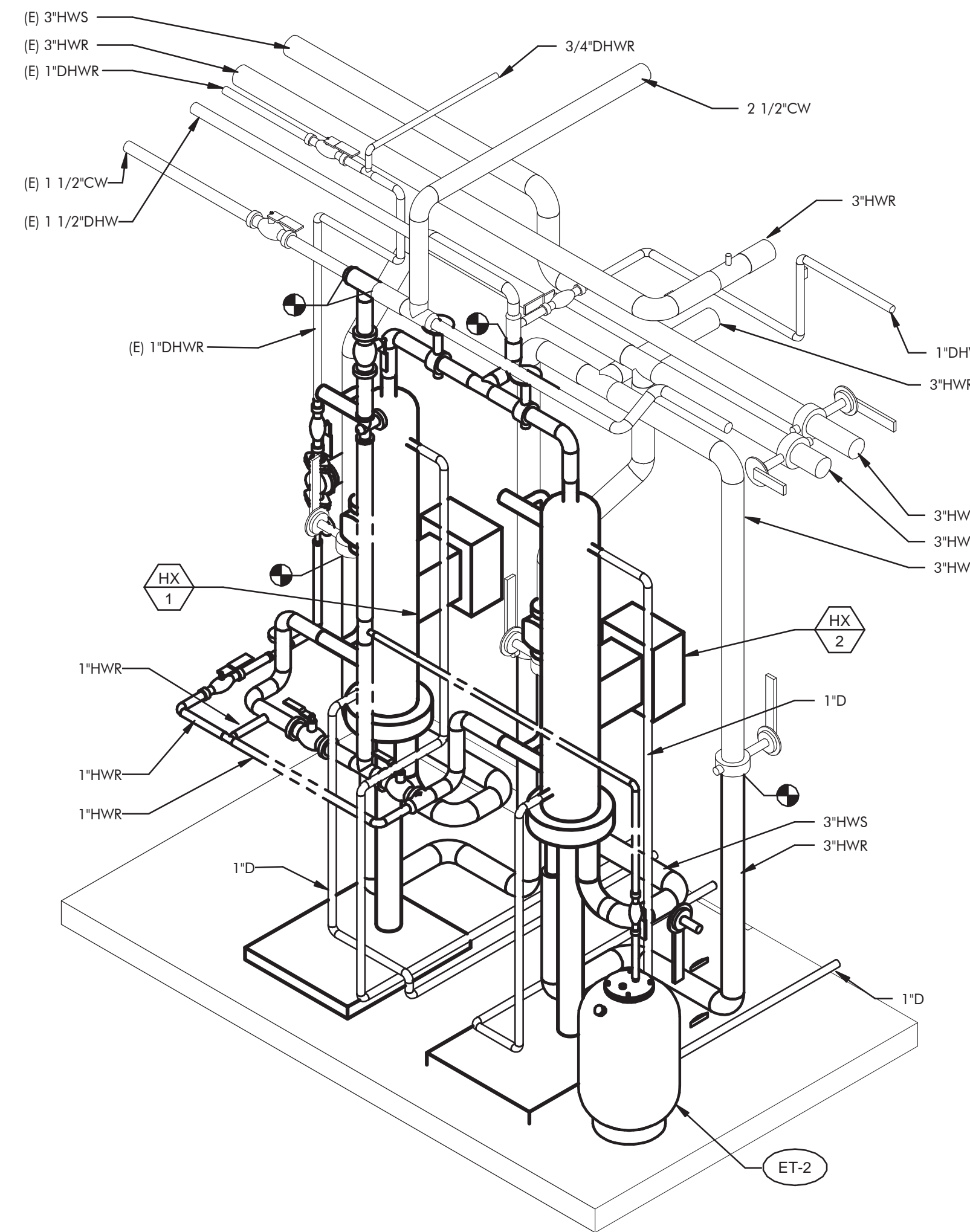


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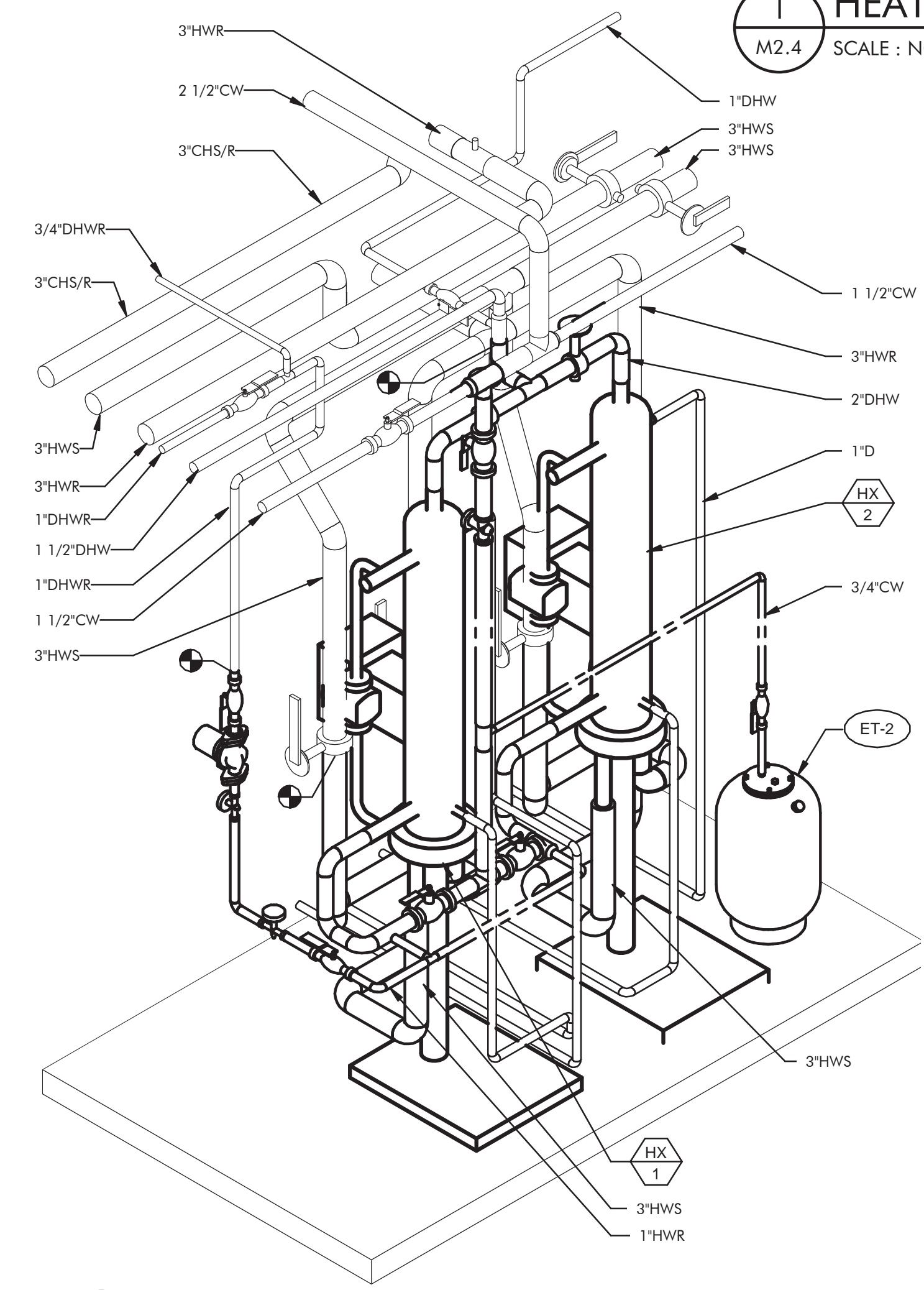


3 NEW ISO SE
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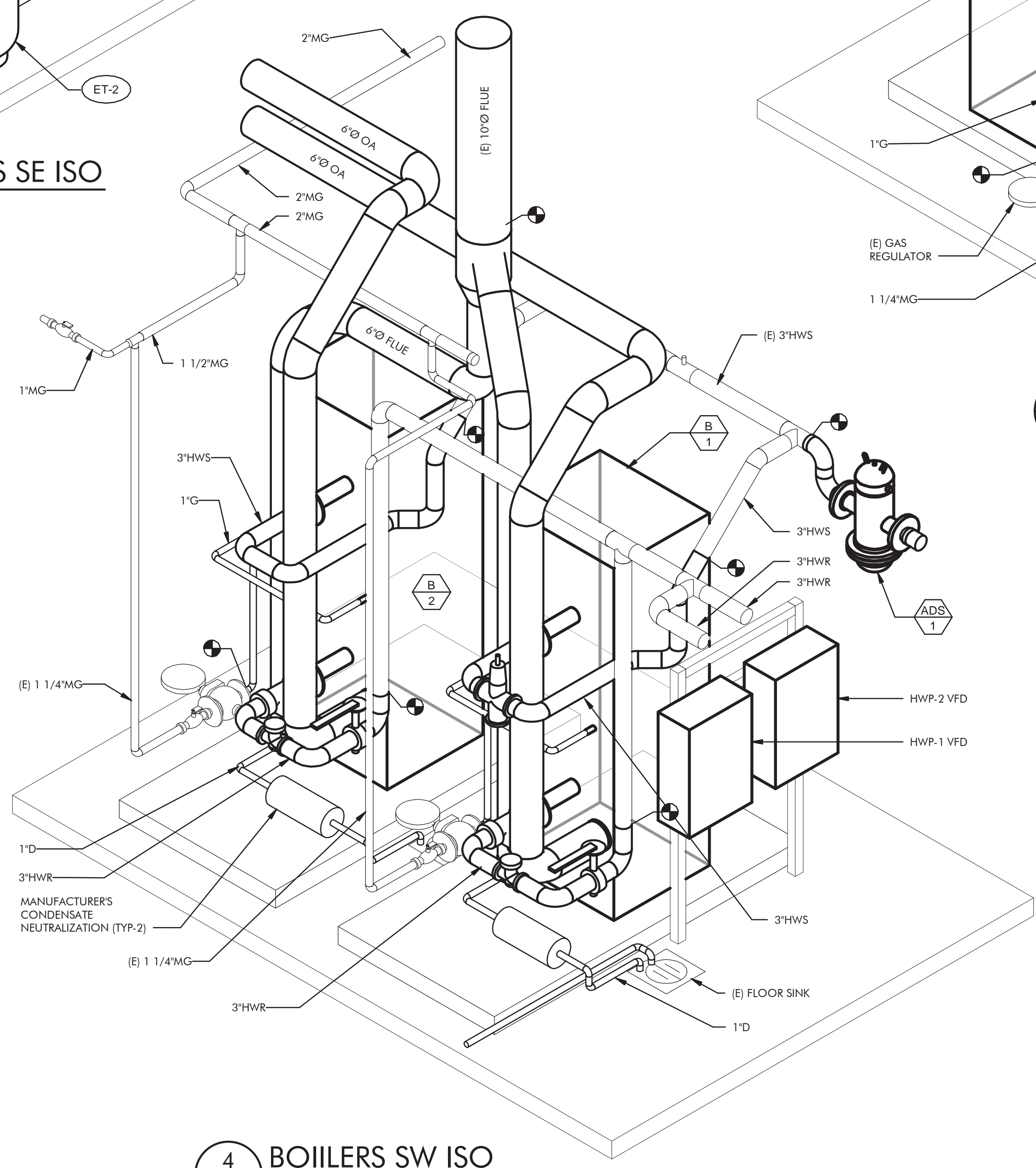
PLOT DATE:



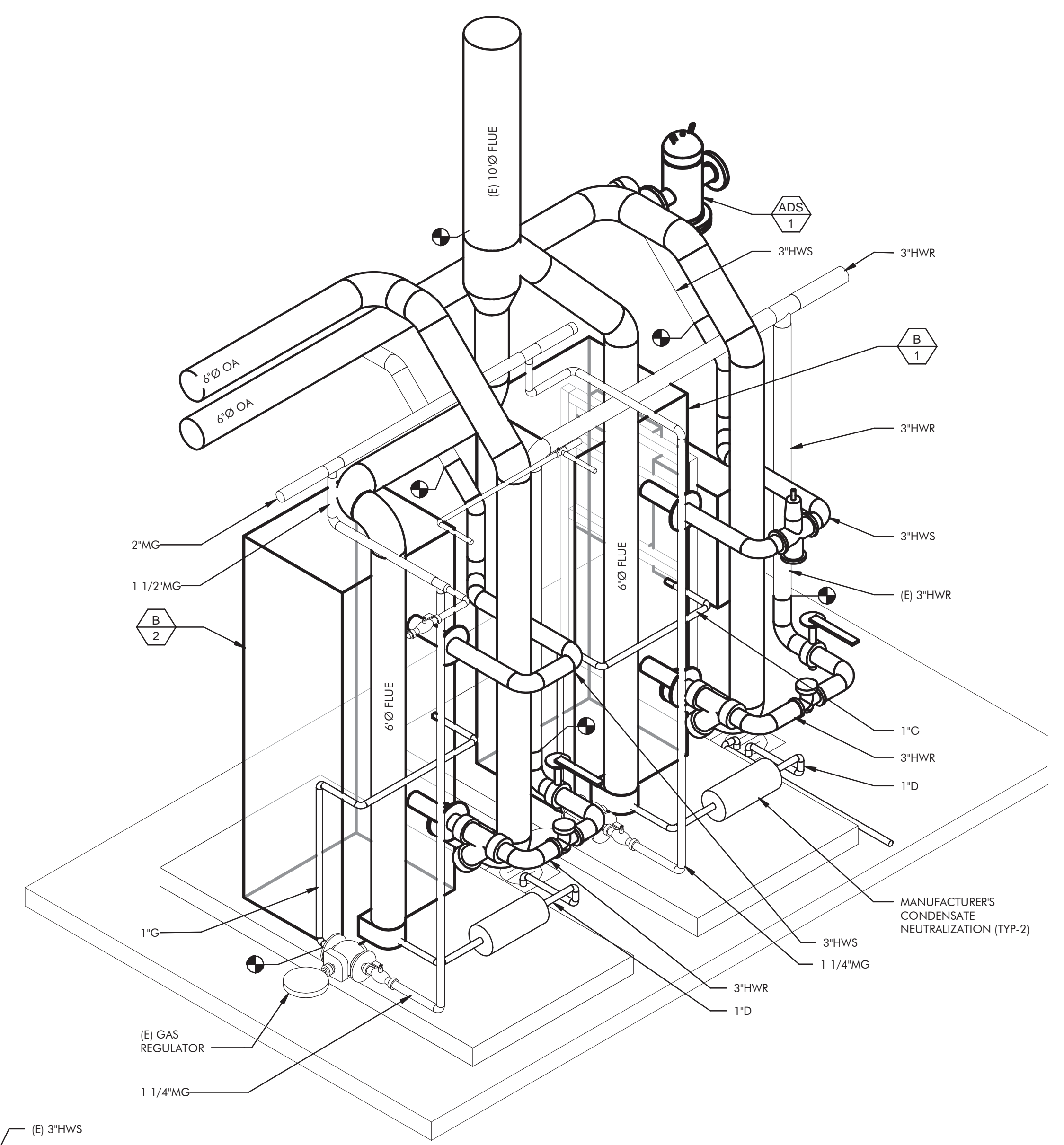
1 HEAT EXCHANGERS SE ISO
M2.4 SCALE : NONE



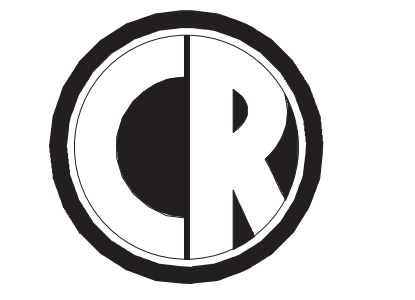
2 HEAT EXCHANGER SW ISO
M2.4 SCALE : NONE



4 BOILERS SW ISO
M2.4 SCALE : NONE



3 BOILERS NW ISO
M2.4 SCALE : NONE



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GENERATOR REPLACEMENT
MECHANICAL ISOMETRICS

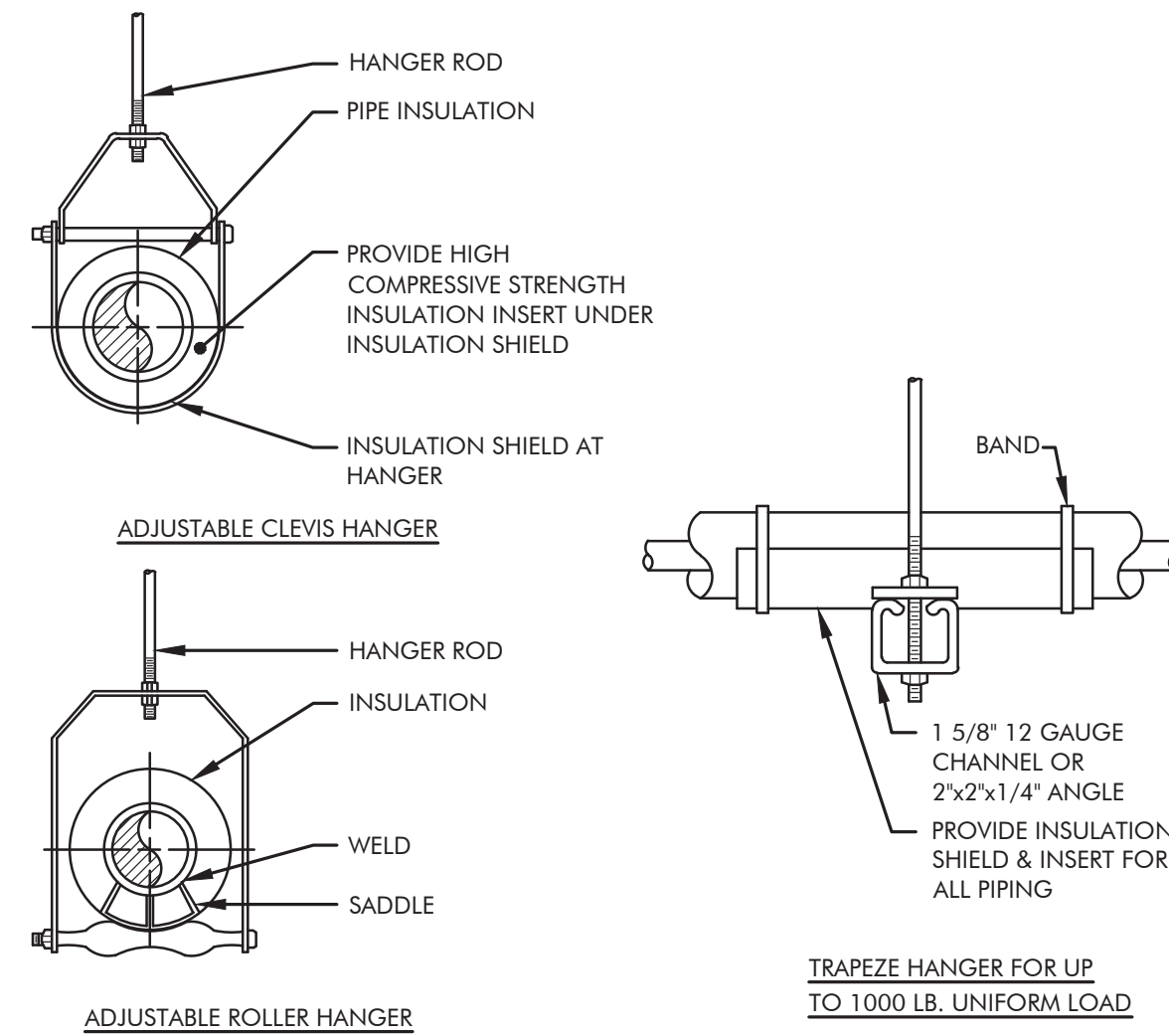
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REV.	DESCRIPTION	DATE

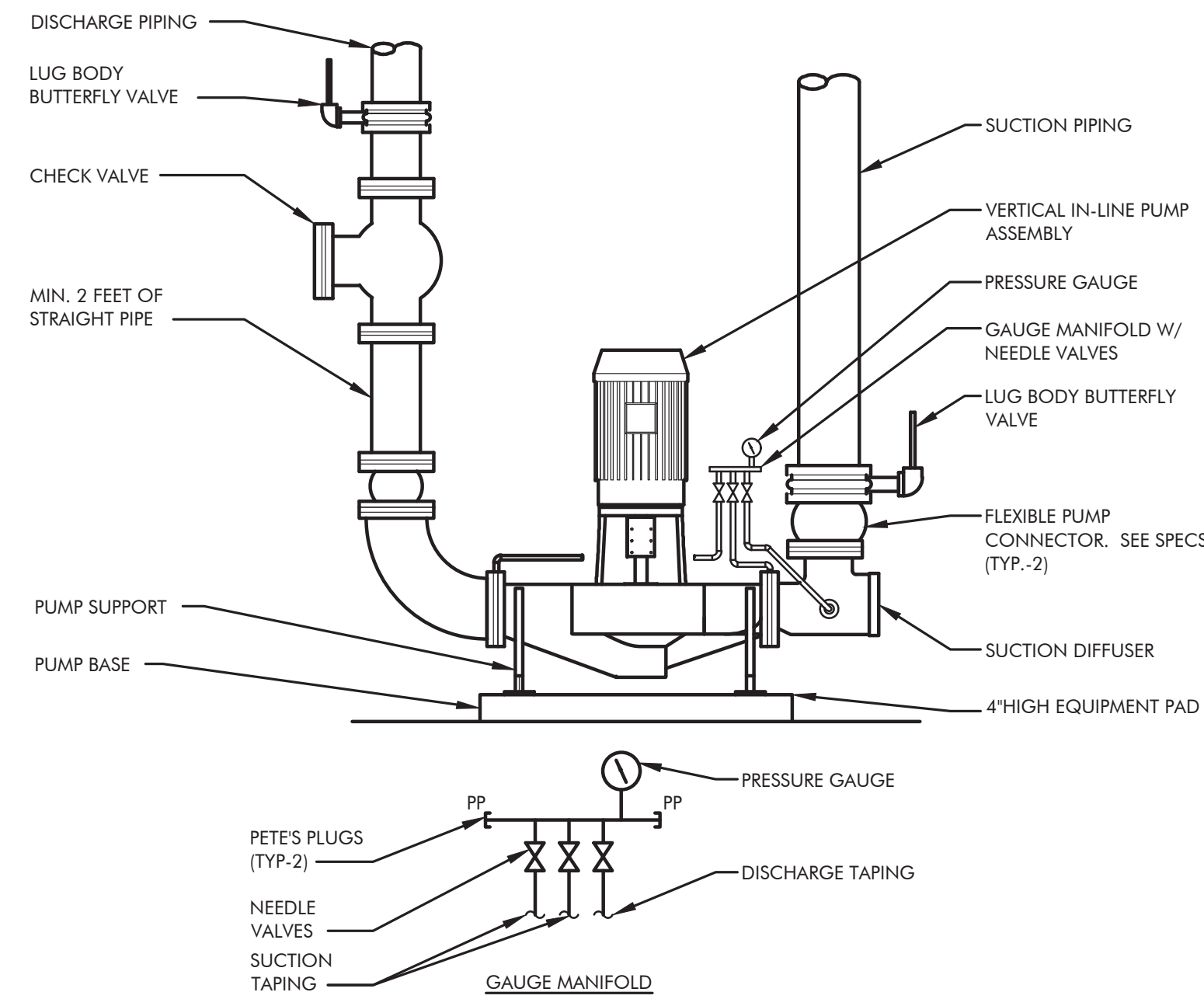
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SHEET NUMBER:

M2.4

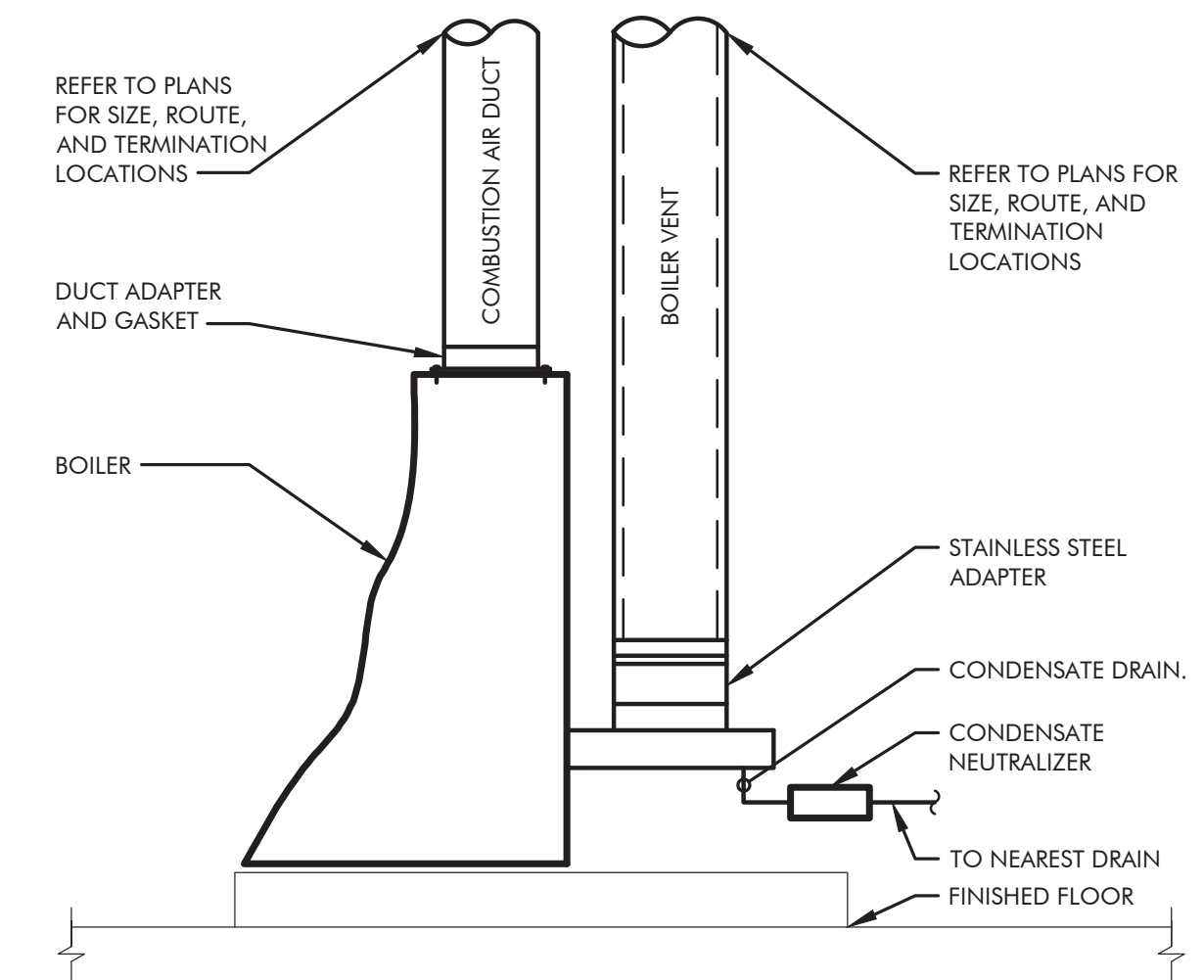
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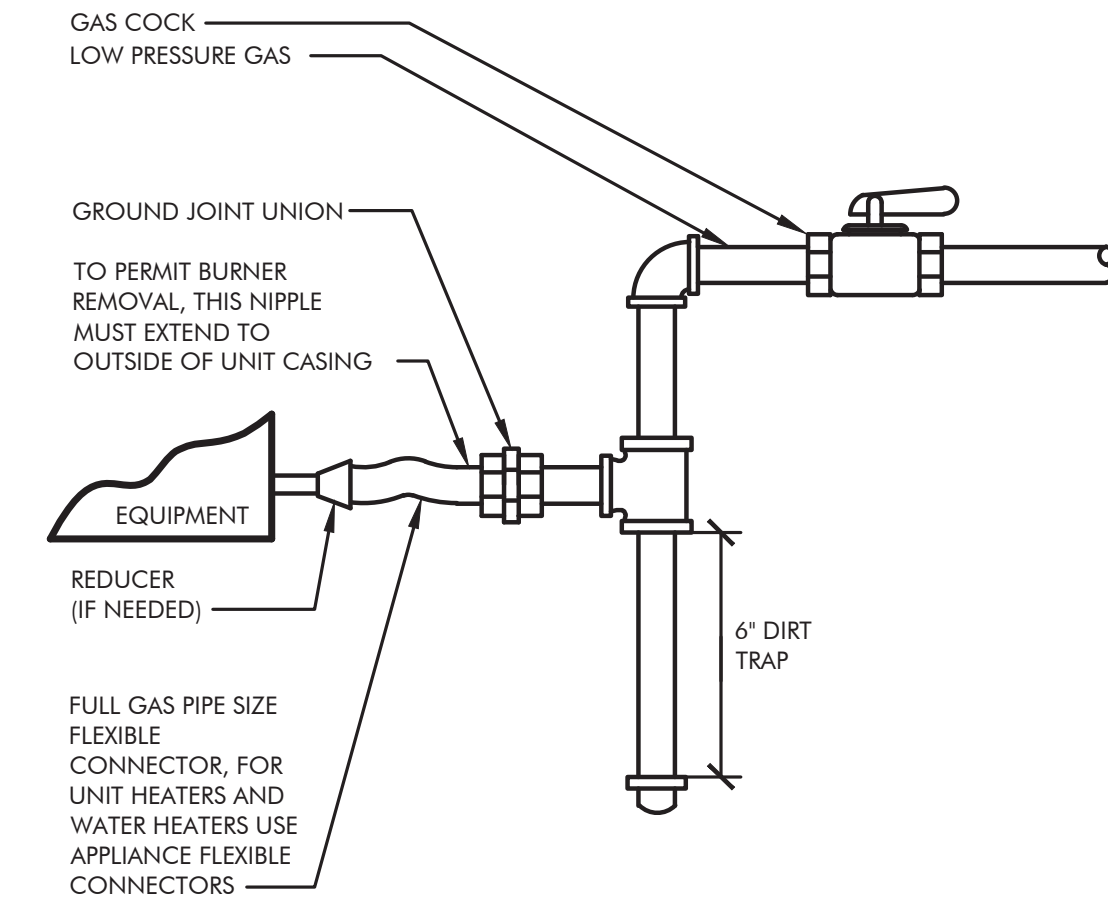
TYPICAL PIPE HANGER DETAIL 1
SCALE: NONE M5.1



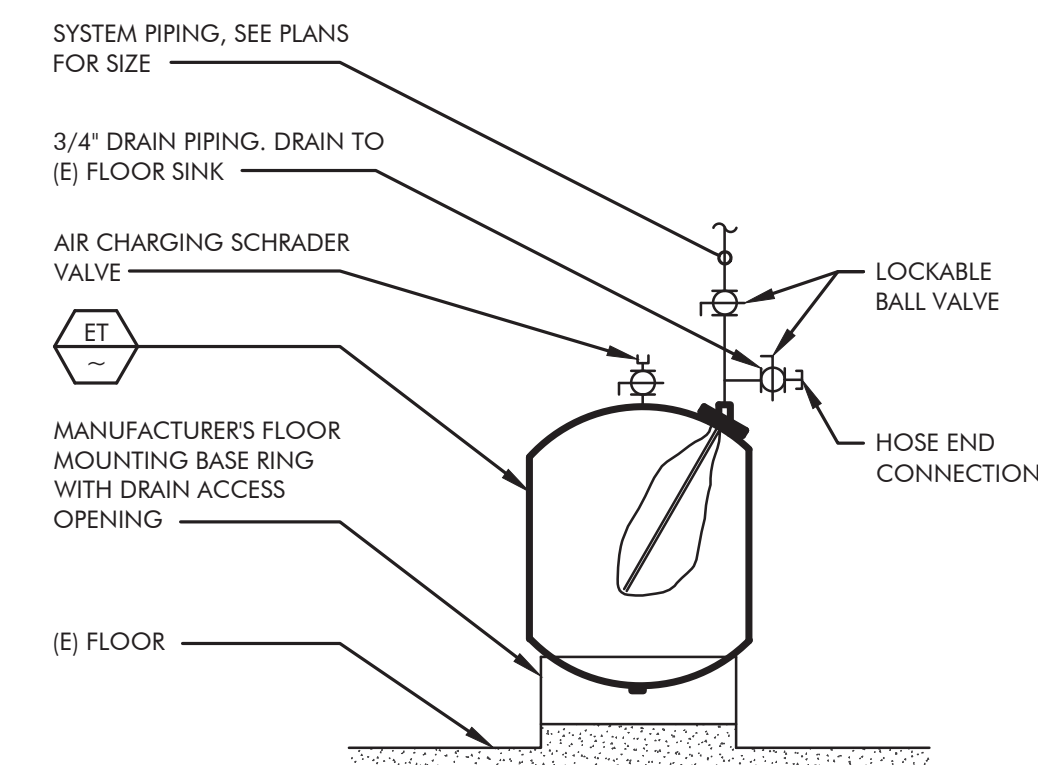
INLINE MOUNTED PUMP DETAIL 2
SCALE: NONE M5.1



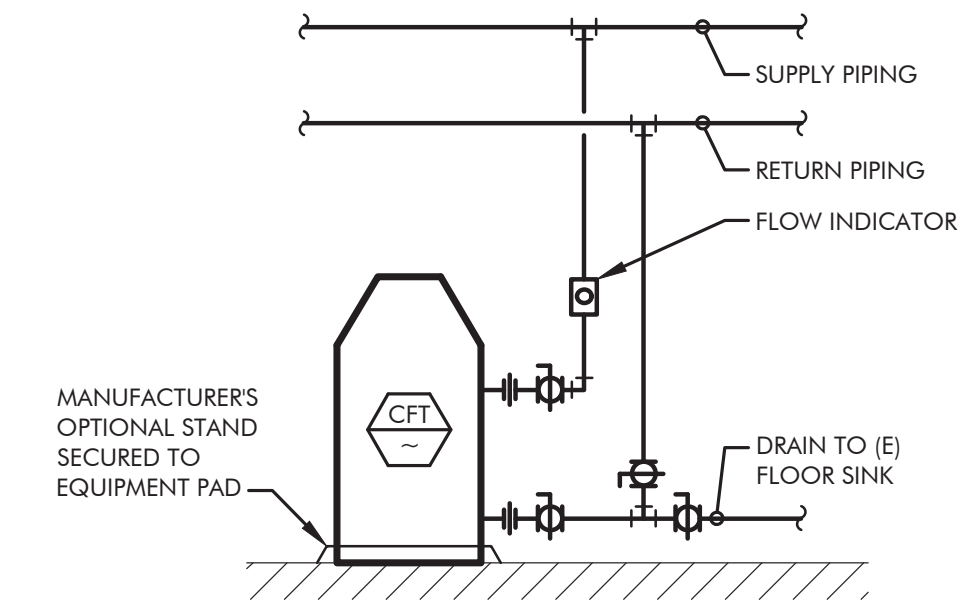
CONDENSING BOILER FLUE CONNECTION DETAIL 3
SCALE: NONE M5.1



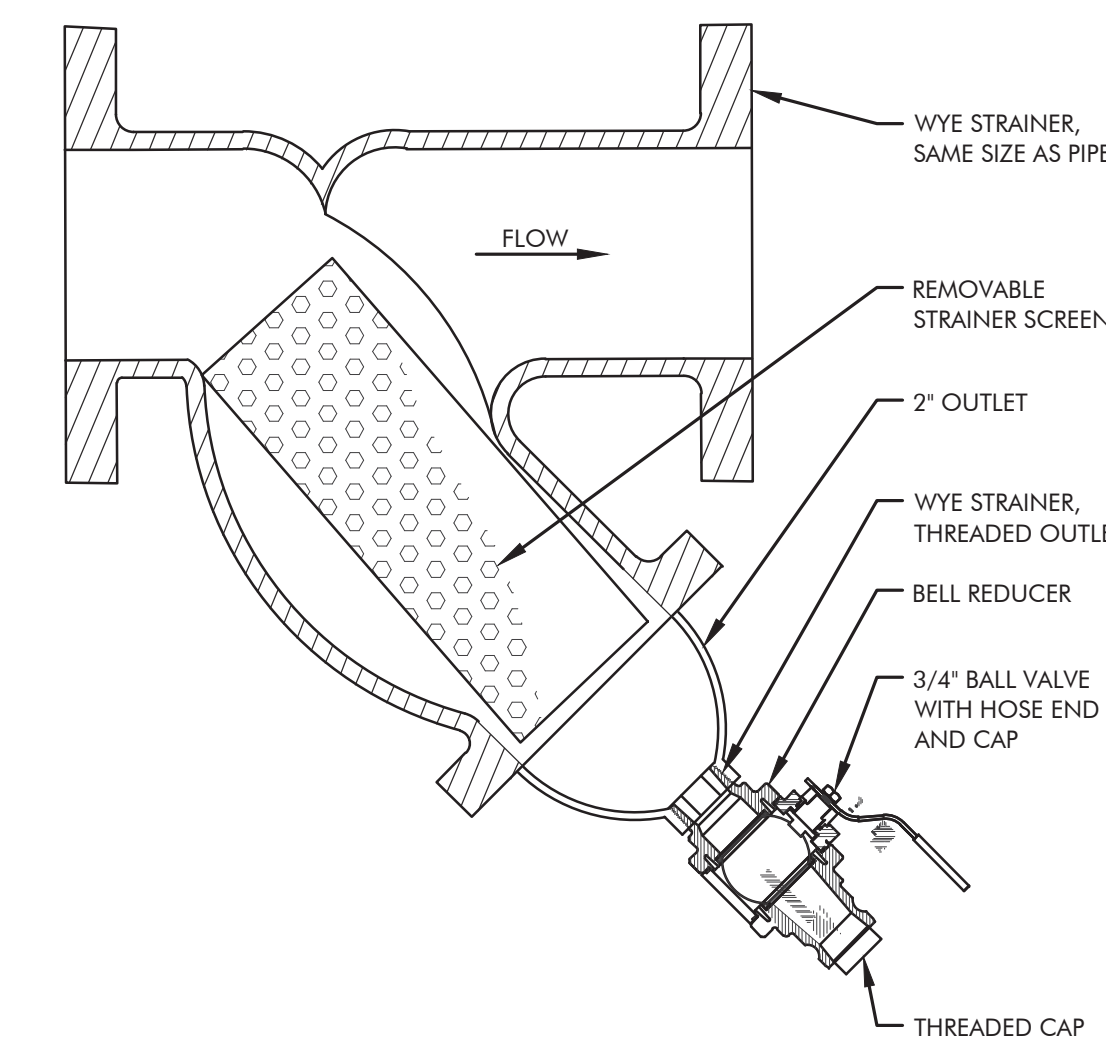
EQUIPMENT GAS PIPING DETAIL 4
SCALE: NONE M5.1



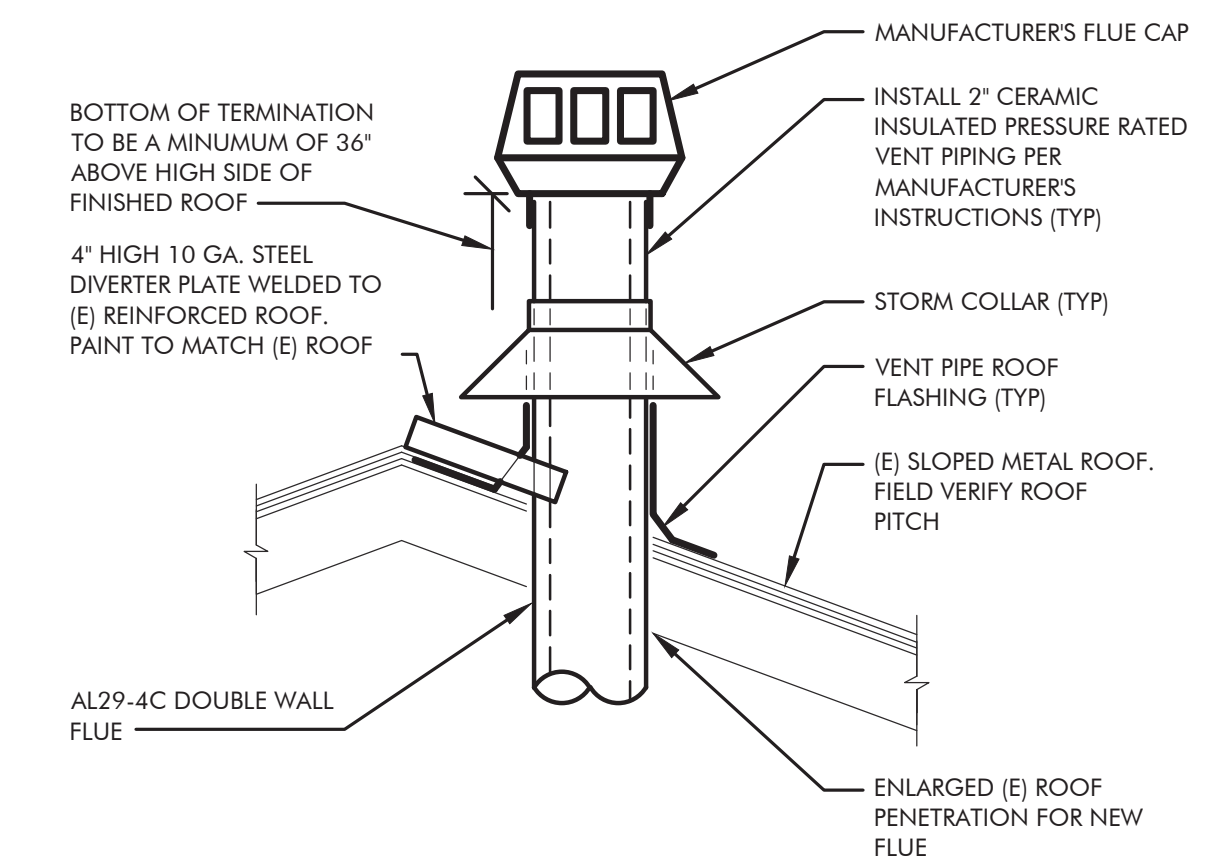
EXPANSION TANK DETAIL 5
SCALE: NONE M5.1



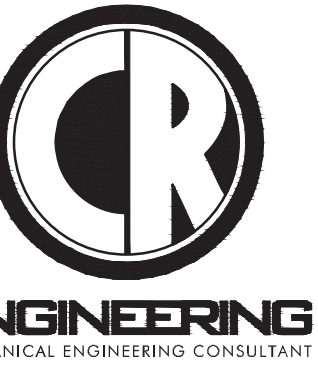
CHEMICAL POT FEEDER DETAIL 6
SCALE: NONE M5.1



WYE STRAINER WITH HOSE CONNECTION DETAIL 7
SCALE: NONE M5.1



EXHAUST FAN DETAIL 8
SCALE: NONE M5.1



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BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT

MECHANICAL DETAIL

REVISIONS:

REV.	DESCRIPTION	DATE

DRAWN BY: RT
DESIGNED BY: CL
CHECKED BY: CL
APPROVED BY: CLR
DATE: 01/29/19
PROJECT NO: 123918

SHEET NUMBER:

M5.1

CONTROLS ABBREVIATIONS

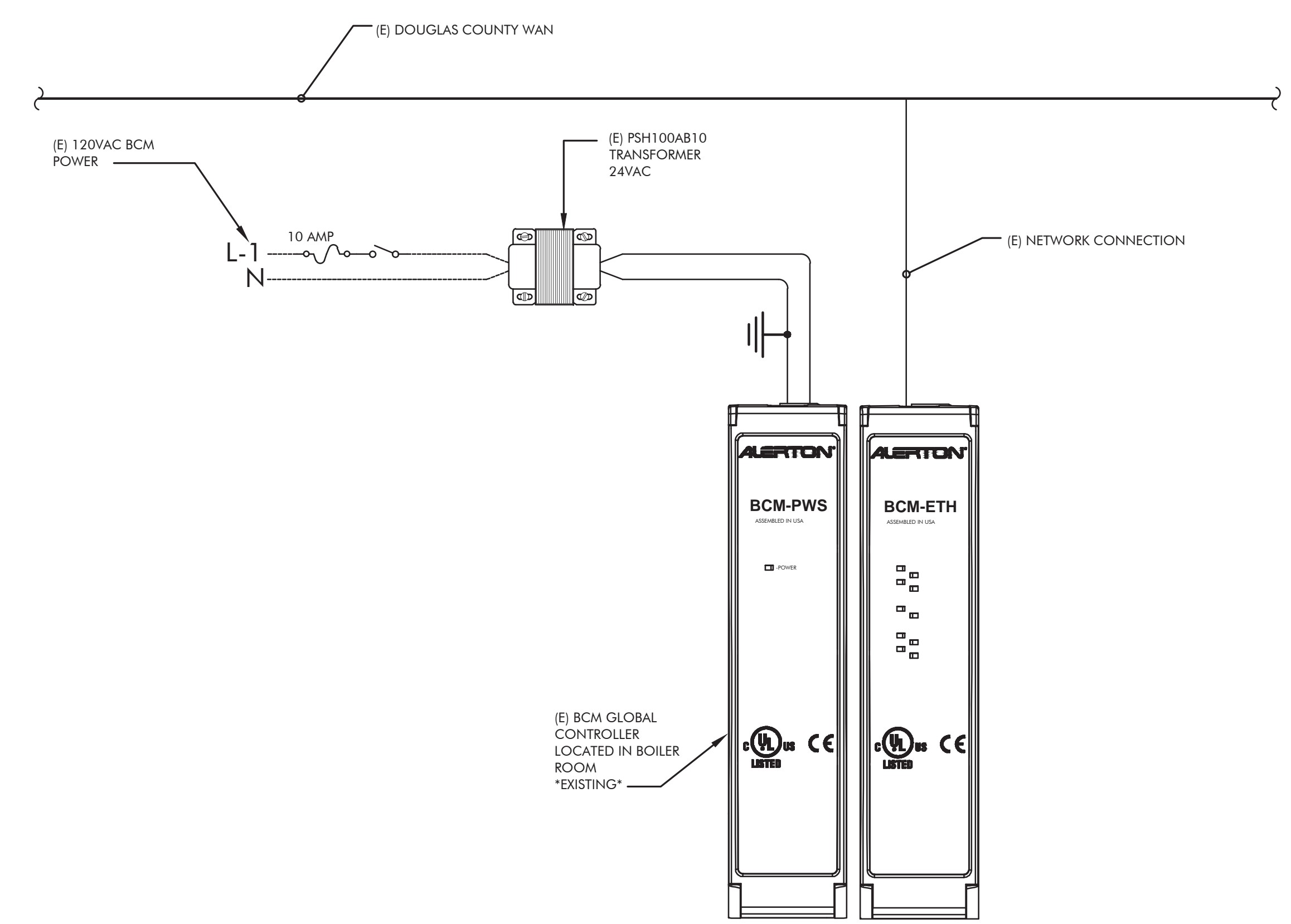
AFF/AFG	ABOVE FINISHED FLOOR/GRADE
BSP	BUILDING STATIC PRESSURE SENSOR (WITH PROBES) CO CARBON MONOXIDE
CHS/CHR	CHILLED WATER SUPPLY/RETURN PIPING
CWS/CWR	CONDENSER WATER SUPPLY/RETURN PIPING
CR	STEAM CONDENSATE RETURN PIPING
DDC	DIRECT DIGITAL CONTROL SYSTEM
(E)	EXISTING
EA	EXHAUST AIR
HWS/HWR	HOT WATER SUPPLY/RETURN PIPING
HTS/HTR	HIGH TEMPERATURE HOT WATER SUPPLY/RETURN PIPING
LPS/MP	LOW/MEDIUM PRESSURE STEAM
MAX	MAXIMUM
MOD	MODULATING ACTUATOR (SPRING RETURN - U.N.O.)
MIN	MINIMUM
(N)	NEW
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTSIDE AIR
PCR	PUMPED STEAM CONDENSATE RETURN PIPING
RA	RETURN AIR
RL	REFRIGERANT LIQUID PIPING
RS	REFRIGERANT SUCTION PIPING
(RX)	REMOVE EXISTING
SA	SUPPLY AIR
TCP	TEMPERATURE CONTROL PANEL
(TR)	TO REMAIN
TWS/TWR	TEMPERED WATER SUPPLY/RETURN PIPING
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VFD	VARIABLE FREQUENCY DRIVE
2-POS	TWO-POSITION ACTUATOR (SPRING RETURN - U.N.O.)

CONTROLS SYMBOL LEGEND

SYMBOL	ABBR.	DESCRIPTION
[AS]	AS	AVERAGING SENSOR
[BSP]	BSP	BUILDING STATIC PRESSURE SENSOR (WITH PROBES)
[CO]	CO ₂	CARBON DIOXIDE SENSOR
[CS]	CS	CURRENT SENSOR/SWITCH
[DP]	DP	DIFFERENTIAL PRESSURE SENSOR
[DSP]	DSP	DUCT STATIC PRESSURE SENSOR
[DS]	DS	DISCONNECT SWITCH (FUSED)
[ESD]	ESD	EMERGENCY SHUT-DOWN SWITCH (BREAK-GLASS TYPE)
[FD]	FD	FIRE DAMPER
[FSD]	FSD	COMBINATION FIRE/SMOKE DAMPER
[FMS]	FMS	FLOW MEASURING STATION
[FS]	FS	FLOW SWITCH
[H]	H	ALARM HORN
[HDS]	HDS	HIGH STATIC PRESSURE SENSOR
[M]	M	MOTORIZED ACTUATOR
[MS]	MS	MOTOR STARTER
[NOX]	NOX	NITROGEN OXIDE SENSOR
[OA]	OA	OUTSIDE AIR TEMPERATURE/HUMIDITY SENSOR
[OS]	OS	OCCUPANCY SENSOR
[OSP]	OSP	OUTDOOR STATIC PRESSURE SENSOR
[R]	R	RELAY (POLES AND VOLTAGE AS REQUIRED)
[RLS]	RLS	REFRIGERANT LEAK SENSOR
[RTS]	RTS	ROOM TEMPERATURE SENSOR
[S]	S	ALARM STROBE
[SD]	SD	SMOKE DAMPER
[SD]	SD	SMOKE DETECTOR (PRODUCTS OF COMBUSTION DETECTOR)
[T]	TS	TEMPERATURE SENSOR (PENCIL TYPE)
[T]	TSTAT	THERMOSTAT OR TEMPERATURE SENSOR @ 48" AFF
[TX]	TX	TRANSFORMER (SIZE & VOLTAGE AS REQUIRED)
(E)		BY ELECTRICAL CONTRACTOR
(P)		BY PLUMBING CONTRACTOR
(M)		BY MECHANICAL CONTRACTOR
(B)		SPRING WOUND BYPASS TIMER @ 48" AFF
[OBD]	OBD	OPPOSED BLADE DAMPER
[PBD]	PBD	PARALLEL BLADE DAMPER
[TCV]	TCV	TEMPERATURE CONTROL VALVE (2-WAY OR 3-WAY)
[T]		PRESSURE SENSOR, TEMPERATURE SENSOR WITH WELL
[P/T]		PRESSURE GAUGE, TEMPERATURE GAUGE
(P)	P	PUMP
(POC)	POC	POINT OF CONNECTION
(+)		POINT OF DISCONNECT
---		POWER WIRING BY ELECTRICAL CONTRACTOR
---		CONTROL WIRING

CONTROL NOTES

- ALL WIRING TO BE IN CONDUIT. PLENUM RATED CABLE WITH J-HOOKS IS ALLOWED FOR ABOVE CEILING INSTALLATION.
- CONTROL SYSTEM CONTRACTOR SHALL PROVIDE A COMPLETE DIRECT DIGITAL CONTROL SYSTEM. PROVIDE AND INSTALL ALL NECESSARY WIRING TO MAKE SYSTEM OPERATIONAL. ALL WIRING SHALL BE IN CONDUIT WITH ANY SPLICES MADE IN JUNCTION BOXES. REFER TO CONTROL DIAGRAMS AND SEQUENCE OF OPERATION ON DRAWINGS.
- CONTROLS CONTRACTOR SHALL CONNECT NEW CONTROLLERS TO THE CONTROL NETWORK AND ADD NEW GRAPHICS. COORDINATE ALL WORK WITH WCSO MAINTENANCE PRIOR TO BID.
- THE THERMOGRAPHIC FLOOR PLAN SHALL BE UPDATED WITH THE NEW FLOOR PLAN AND ZONING, INCLUDING THE ROOM TEMPERATURE SENSORS.
- CONTROLS CONTRACTOR TO COORDINATE UNIT LABELING ON GRAPHICS, THERMOSTAT, AND CONTROLLER WITH WCSO MAINTENANCE PRIOR TO INSTALLATION.
- CABLE SIZE SHALL MEET OR EXCEED ASHRAE STANDARD 135-2016.
- CONTROLS CONTRACTOR:
BUILDING CONTROL SERVICES (BCS)
4750 LONGLEY LANE, SUITE 102
RENO, NEVADA 89523
PH: (775) 826-8998
CONTACT: TOM HULBERT



SYSTEM ARCHITECTURE
SCALE: NONE



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BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT
MECHANICAL CONTROL
DIAGRAMS AND SEQUENCE OF
OPERATION

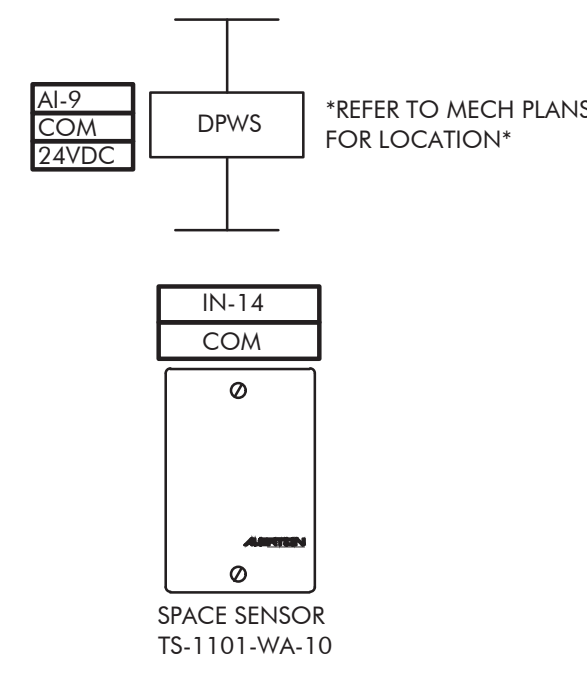
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REV.	DESCRIPTION	DATE

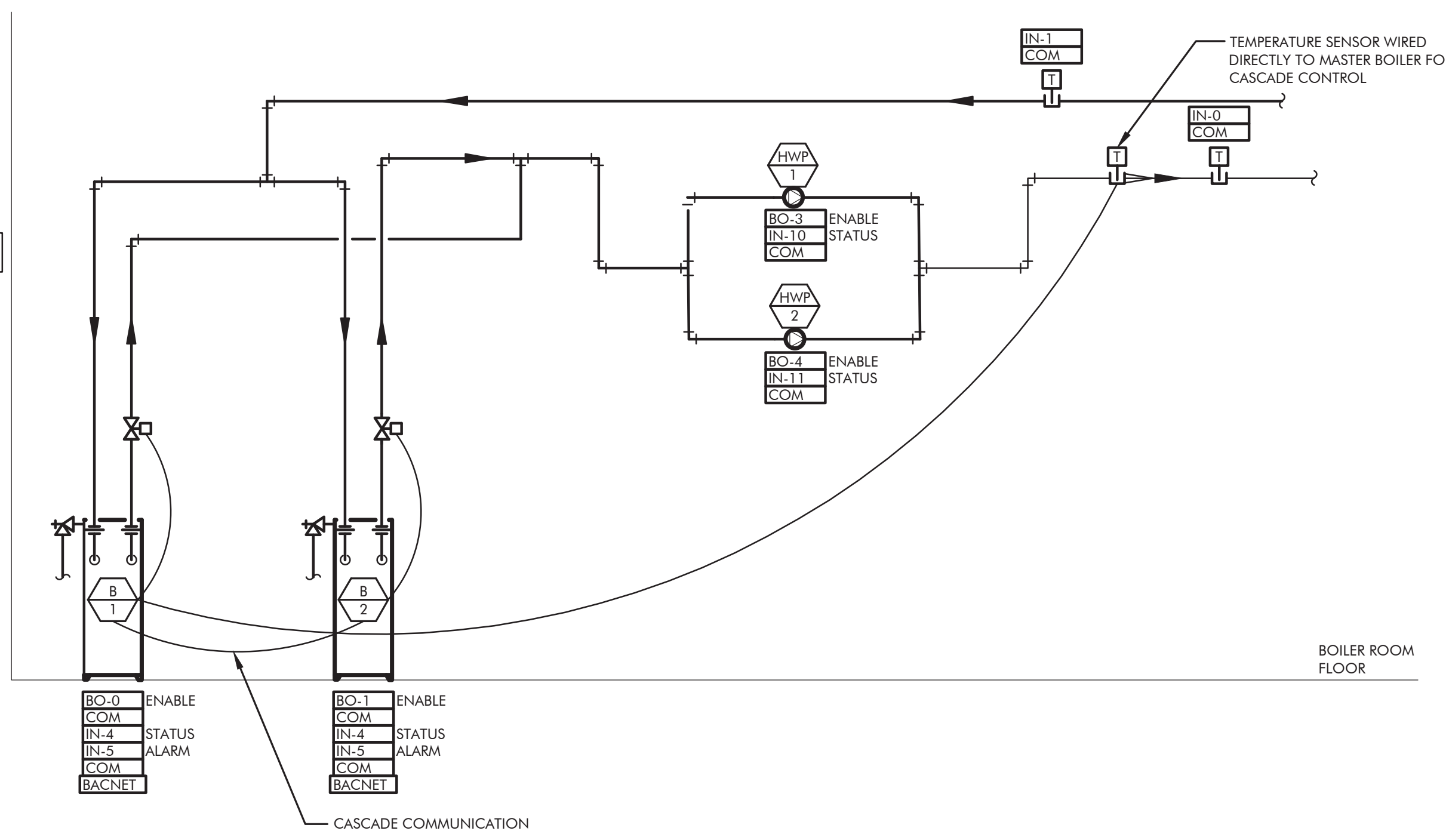
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APPROVED BY: CLR
DATE: 01/29/19
PROJECT NO: 123918

SHEET NUMBER:

M6.1

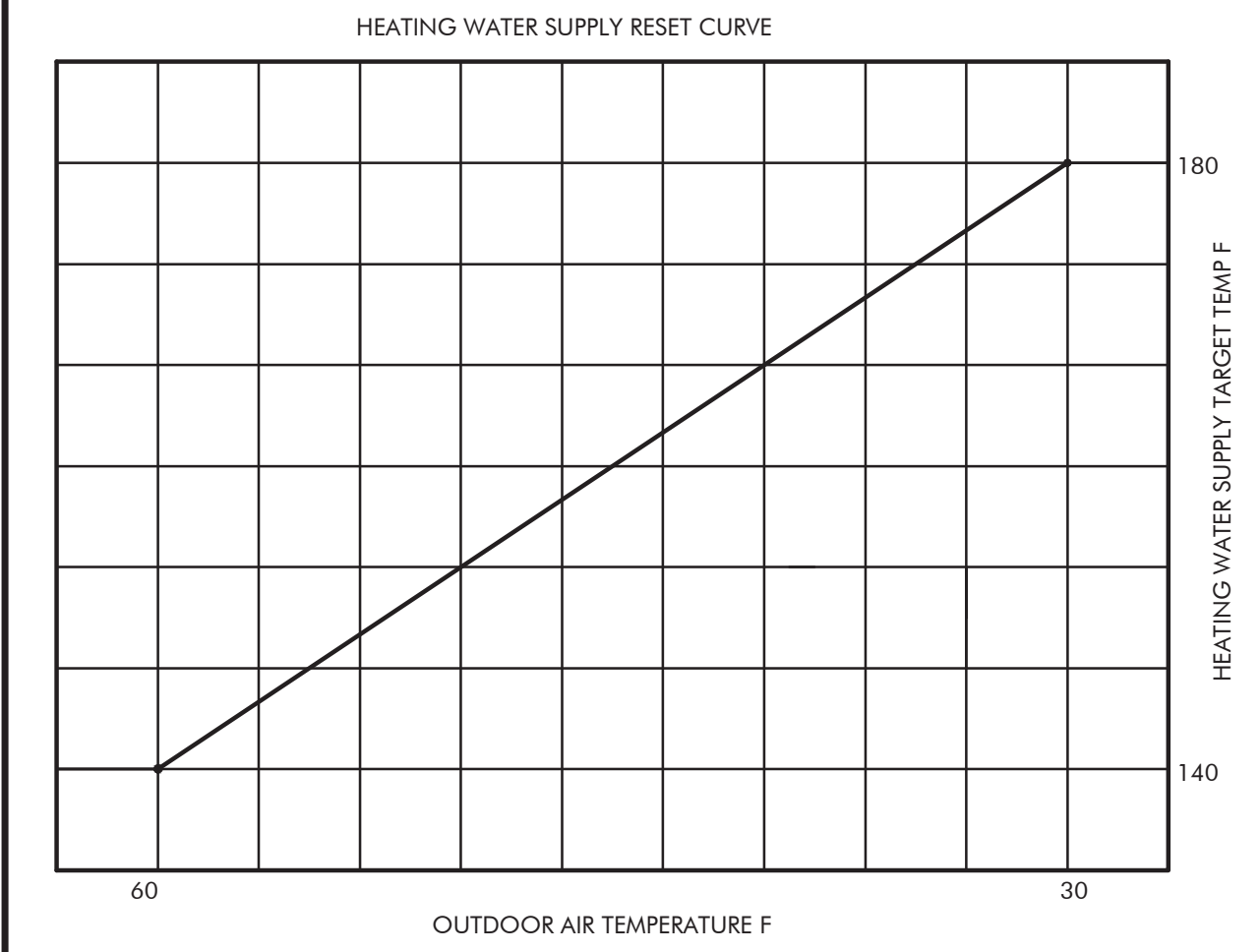


LOCATE OSA SENSOR ON NORTH SIDE OF BUILDING IN THE SHADE

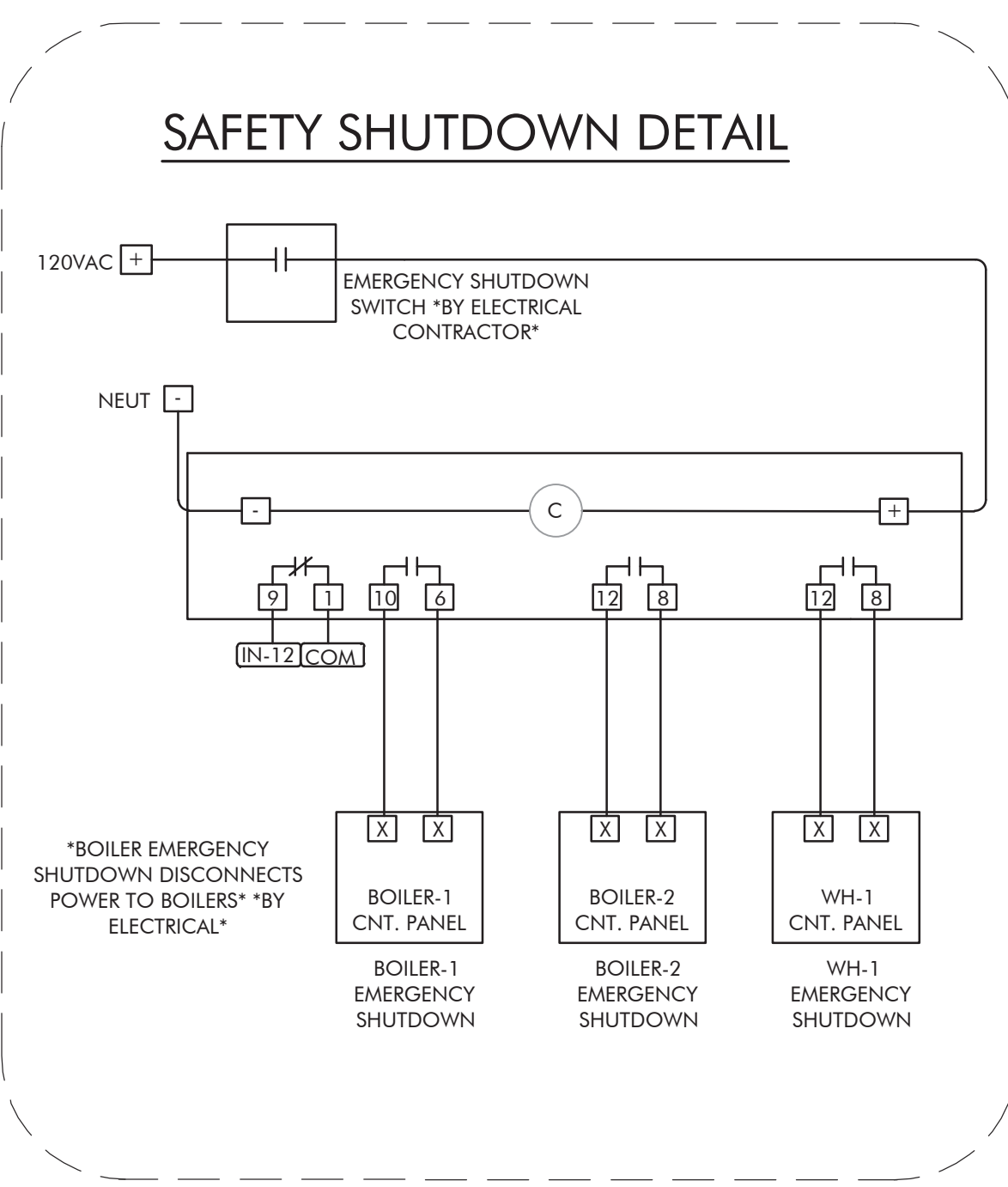
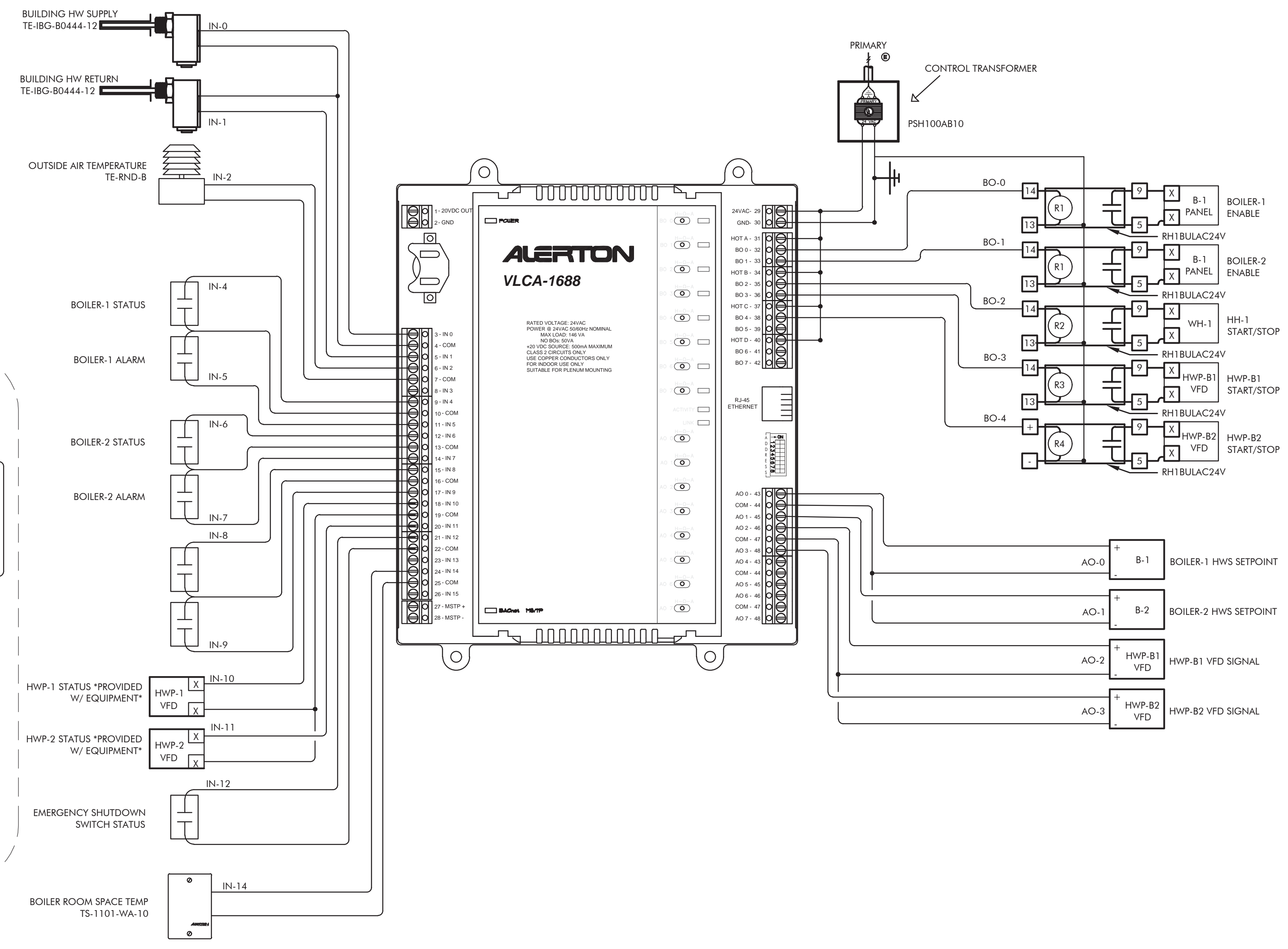


HEATING HOT WATER SYSTEM SEQUENCE OF OPERATION

- A. SETPOINTS
- HEATING SYSTEM SHALL BE ENABLED AT 60°F AND DISABLED AT 70°F (10°F DEADBAND) OR AS DIRECTED BY THE OWNER. ALL SETTINGS SHALL BE ADJUSTABLE.
 - THE HEATING WATER SUPPLY TEMPERATURE SHALL BE RE-SET BY THE BUILDING MANAGEMENT SYSTEM IN ACCORDANCE WITH THE FOLLOWING CURVE (INITIALLY 1:1 RATIO):



- B. BUILDING HEATING PUMPS (HWP-B1 & HWP-B2)
- WHEN HEATING SYSTEM IS ENABLED, THE BUILDING MANAGEMENT SYSTEM SHALL START LEAD BUILDING SUPPLY PUMP (HWP-B1 OR HWP-B2)
 - UPON FAILURE OF THE LEAD PUMP, THE BUILDING MANAGEMENT SYSTEM SHALL ENERGIZE THE LAG (STANDBY) PUMP.
 - THE BUILDING MANAGEMENT SYSTEM SHALL ALTERNATE LEAD/LAG OF PUMPS WEEKLY.
- C. BOILERS (B-1 & B-2) & PUMPS (HWP-1 & HWP-2)
- THE BUILDING MANAGEMENT SYSTEM SHALL SEND SIGNAL TO MASTER BOILER CONTROLLER, THE BOILER CONTROLLER SHALL ENERGIZE LEAD BOILER (B-1 / B-2) AND START ASSOCIATED PUMP (HWP-1 / HWP-2) UTILIZING THE BOILERS INTERNAL LEAD/LAG CONTROL.
 - BOILER INTERNAL CONTROLS SHALL OPEN BOILER CONTROL VALVE FULLY OPEN, WHEN AUXILIARY SWITCHES ON ACTUATOR INDICATES VALVE HAS OPENED FULLY, BOILER SHALL ENERGIZE
 - THE ASSOCIATED BOILER PUMP SHALL RUN CONTINUOUSLY WHEN BOILER IS IN OPERATION. THE BOILER CONTROLLER SHALL SHUT OFF THE PUMP 15 MINUTES AFTER BOILER SHUTDOWN TO PREVENT RESIDUAL HEAT FROM EXCEEDING BOILER HIGH LIMIT TEMPERATURE.
 - FLOW SWITCH AT BOILER DISCHARGE ALLOWS BOILERS TO ENERGIZE. BOILER INTEGRAL CONTROLS TO MODULATE BURNER TO MAINTAIN SYSTEM HEADER WATER TEMPERATURE SETPOINT.
 - THE BOILER CONTROLLER SHALL INDICATE ALARM CONDITION WHENEVER THE BOILER INDICATES FAILURE (THROUGH ALARM CONTACTS).
 - THE MANUAL RESET HIGH LIMIT CONTROL ON EACH BOILER SHALL BE SET INITIALLY AT APPROXIMATELY 210°F (ADJUSTABLE).
 - IF ANY SPACE TEMPERATURE SENSOR FALLS BELOW 50°F, THEN THE HEATING SYSTEM SHALL BE PLACED IN THE ENABLED MODE.
 - SAFETIES:
 - FLOW SWITCH SHALL DISABLE BOILER AND SET ALARM.
 - EMERGENCY SHUTDOWN SWITCH AT EACH BOILER ROOM EXIT SHALL DISCONNECT THE POWER TO ALL FUEL BURNING EQUIPMENT IN BOILER ROOM.
- D. OPERATOR'S TERMINAL
- SEE "TEMPERATURE CONTROL AND EMCS GENERAL NOTES".
 - HEATING WATER SUPPLY TEMPERATURE (°F).
 - HEATING WATER RETURN TEMPERATURE (°F).
 - BOILER SUPPLY TEMPERATURE (°F).
 - BOILER COMMAND (ENABLE/DISABLE).
 - BOILER STATUS (ON/OFF).
 - BOILER ALARM (ALARM/NORMAL).
 - HW PUMP COMMAND (START/STOP).
 - HW PUMP STATUS (ON/OFF).
 - HEATING WATER RESET TEMPERATURE (°F).



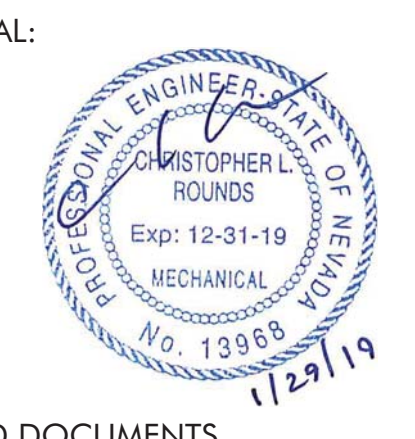
HEATING HOT WATER PLAN CONTROL DIAGRAM 1 M6.2 SCALE: NONE



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REVISIONS:

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W:\2018\123918\123918 M6.2 HEATING HOT WATER CONTROL DIAGRAM.dwg
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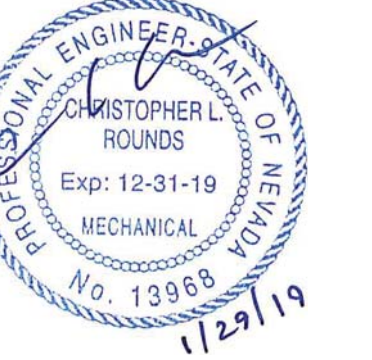


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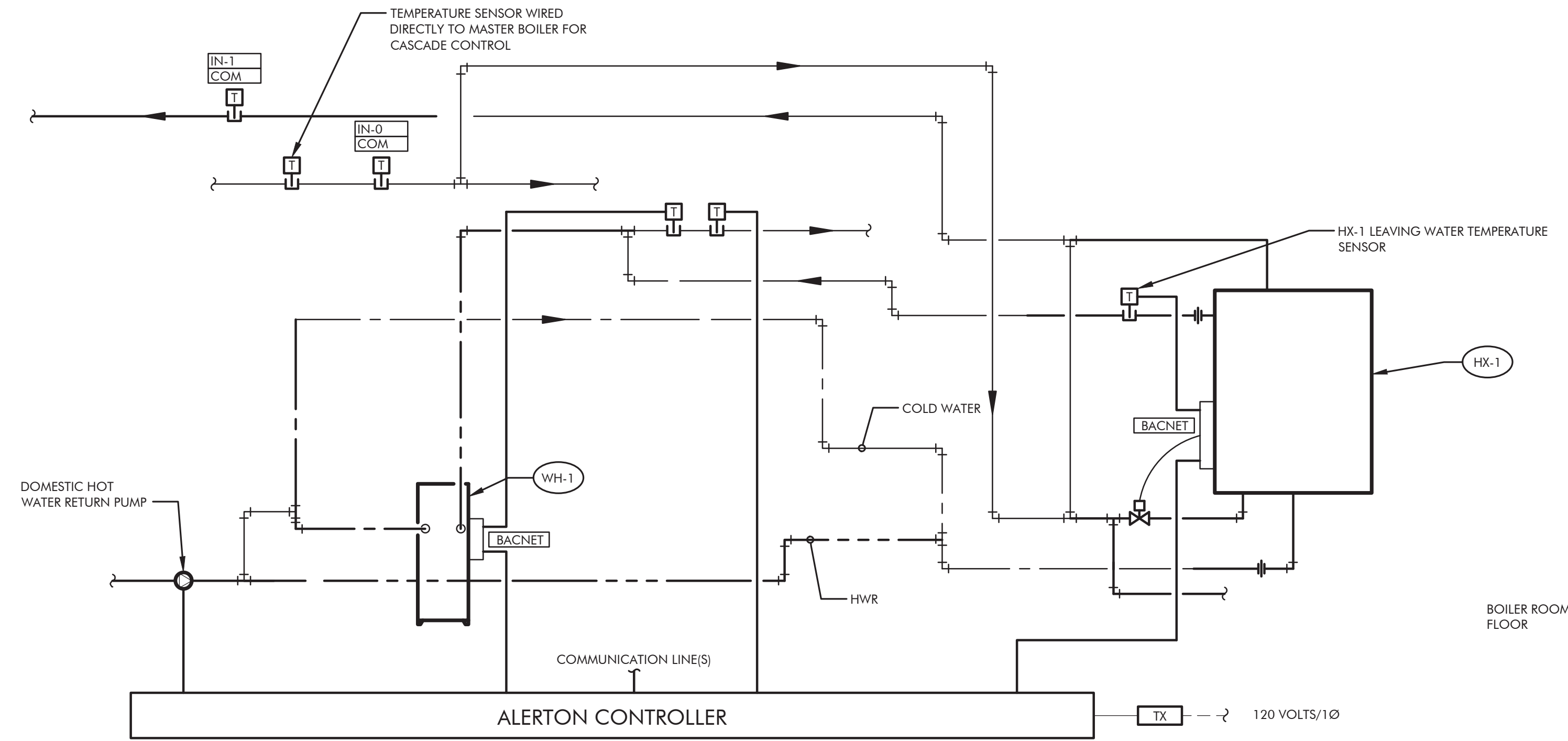


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CONSULTANT:

DOMESTIC WATER SEQUENCE OF OPERATIONS

1. HX-1 CONTROL VALVE SHALL MODULATE TO MAINTAIN A LEAVING DOMESTIC HOT WATER TEMPERATURE OF 115°F
2. WH-1 SHALL MODULATE INTERNAL GAS VALVE TO MAINTAIN DOMESTIC HOT WATER TEMPERATURE OF 115°F
3. BMS SHALL ALARM DOUGLAS COUNTY FACILITY WHEN DOMESTIC HOT WATER IS BELOW 110°F



WH-1 AND HX-1 PIPING DIAGRAM

SCALE: NONE

1
M6.3

NOTE: WORK SHOWN IS A BID ALTERNATE. COORDINATE WITH CMAR ON ALTERNATE NUMBER

DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT

MECHANICAL CONTROL
DIAGRAMS AND SEQUENCE OF
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ELECTRICAL SYMBOLS AND NOMENCLATURE

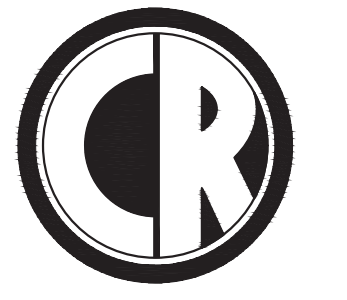
	SINGLE-OUTLET RECEPTACLE		SINGLE-PHASE, 1-POLE CIRCUIT PATH (1/2" CONDUIT, (2) - #10 CU, UNLESS OTHERWISE NOTED) BELOW FLOOR
	DOUBLE-OUTLET 'DUPLEX' RECEPTACLE		SINGLE-PHASE, 2-POLE CIRCUIT PATH (1/2" CONDUIT, (3) - #10 CU, UNLESS OTHERWISE NOTED) BELOW FLOOR
	THREE-PHASE (3φ) RECEPTACLE (CONFIGURATION AS NOTED)		THREE-PHASE, 1-POLE CIRCUIT PATH (1/2" CONDUIT, (4) - #10 CU, UNLESS OTHERWISE NOTED) BELOW FLOOR
	QUADRIPOLE-OUTLET 'QUAD' RECEPTACLE		RETURN CIRCUIT TO PANEL 'HOMERUN' (CIRCUIT AS NOTED) ABOVE FLOOR
	SPECIAL RECEPTACLE (VOLTAGE/CONFIGURATION AS NOTED)		CIRCUIT BREAKER (AMPS/POLES AS NOTED)
	JUNCTION BOX		FUSE (AMPS/POLES AS NOTED)
	FLOOR MOUNT RECEPTACLE		SHEET NOTE INDICATOR
	THERMOSTAT		SHEET/EQUIPMENT NOTE INDICATOR
	SAFETY DISCONNECT SWITCH (SIZE/VOLTAGE/CONFIGURATION AS NOTED)		EQUIPMENT NOTE INDICATOR
	COMBINATION SAFETY SWITCH/MAGNETIC STARTER		REVISION 'DELTA' NOTE INDICATOR
	TELEPHONE/DATA JUNCTION BACKBOX		FEEDER NOTE INDICATOR
	SINGLE-POLE TOGGLE SWITCH (VOLTAGE AS REQUIRED)	48"	48" MOUNTING HEIGHT AFF. (ACTUAL HEIGHT AS NOTED)
	MULTI-STATION 'THREE-WAY' TOGGLE SWITCH (VOLTAGE AS REQUIRED)	AFF.	ABOVE FINISHED FLOOR
	SOLID STATE DIMMING SWITCH (VOLTAGE AS REQUIRED)	A.F.G.	ABOVE FINISHED GRADE
	MOTOR-RATED TOGGLE SWITCH (VOLTAGE AS REQUIRED)	A.T.S.	AUTOMATIC TRANSFER SWITCH
	KEYED TOGGLE SWITCH (VOLTAGE AS REQUIRED)	C	CONDUIT
	CABLE TELEVISION OUTLET	CB	CIRCUIT BREAKER
	PANELBOARD (NAME/AMP/PHASE/VOLTAGE/CONFIGURATION AS NOTED)	CLG	CEILING
	TRANSFORMER (NAME/KVA RATING/PHASE/VOLTAGE AS NOTED)	(E)	EXISTING
	INDICATES MECHANICAL EQUIPMENT	FACP	FIRE ALARM CONTROL PANEL
	PHOTO ELECTRIC CELL	F.B.O.	FURNISHED BY OTHERS
	TIME CLOCK	GFI	GROUND FAULT INTERRUPTING TYPE
	CONTACTOR (CONFIGURATION AS NOTED)	HID	HIGH INTENSITY DISCHARGE
	DUCT DETECTOR FIRE ALARM SYSTEM COMPONENT	LTG	LIGHTING
	SMOKE DETECTOR FIRE ALARM SYSTEM COMPONENT	NTS	NOT TO SCALE
	HEAT DETECTOR FIRE ALARM SYSTEM COMPONENT	MCB	MAIN CIRCUIT BREAKER
	FLOW SWITCH FIRE ALARM SYSTEM COMPONENT	M.S.B.	MAIN SWITCH BOARD
	TAMPER SWITCH FIRE ALARM SYSTEM COMPONENT	(N)	NEW
	HORN/STROBE COMBINATION FIRE ALARM SYSTEM COMPONENT	NL	NIGHT LIGHT
	MANUAL PULL STATION	TYP	TYPICAL
	SINGLE-PHASE, 1-POLE CIRCUIT PATH (1/2" CONDUIT, (2) - #10 CU, UNLESS OTHERWISE NOTED) ABOVE FLOOR	UG	UNDER GROUND
	SINGLE-PHASE, 2-POLE CIRCUIT PATH (1/2" CONDUIT, (3) - #10 CU, UNLESS OTHERWISE NOTED) ABOVE FLOOR	UN	UNLESS OTHERWISE NOTED
	THREE-PHASE, 1-POLE CIRCUIT PATH (1/2" CONDUIT, (4) - #10 CU, UNLESS OTHERWISE NOTED) ABOVE FLOOR	UP	WEATHER PROOF
	RETURN CIRCUIT TO PANEL 'HOMERUN' (CIRCUIT AS NOTED) ABOVE FLOOR	XFR	TRANSFORMER
	MOTOR (HORSEPOWER AS NOTED)		SHUNT TRIP STATION

MECHANICAL EQUIPMENT CONNECTION SCHEDULE:

MEQ #	DISCONNECTING MEANS	STARTER	VOLTS / φ	FED FROM	CONDUIT & WIRE	LOAD KVA	NOTES
1	20-AMP MOTOR RATED SWITCH	--	120 / 1	'ELA'-24	1/2" C, (2) - #12 Cu & (1) - #12 Cu GRND	1.56	NOTE #5
2	20-AMP MOTOR RATED SWITCH	--	120 / 1	'ELA'-26	1/2" C, (2) - #12 Cu & (1) - #12 Cu GRND	1.56	NOTE #5
3	FACTORY WIRED & INSTALLED VFD-1	VFD BY MECH	480 / 3	VIA VFD-1	1/2" C, (3) - #12 Cu & (1) - #12 Cu GRND	6.32	5 HP
4	FACTORY WIRED & INSTALLED VFD-2	VFD BY MECH	480 / 3	VIA VFD-2	1/2" C, (3) - #12 Cu & (1) - #12 Cu GRND	6.32	5 HP
5	NEMA 5-15R GFI RECEPTACLE	--	120 / 1	'LDP'-1	1/2" C, (2) - #12 Cu & (1) - #12 Cu GRND	0.05	--
6	20-AMP MOTOR RATED SWITCH	--	120 / 1	'LA'-23	1/2" C, (2) - #12 Cu & (1) - #12 Cu GRND	0.84	--
7	20-AMP MOTOR RATED SWITCH	--	120 / 1	'LA'-23	1/2" C, (2) - #12 Cu & (1) - #12 Cu GRND	0.84	--
8	NEMA 5-15R GFI RECEPTACLE	--	120 / 1	'LA'-21	1/2" C, (2) - #12 Cu & (1) - #12 Cu GRND	0.06	--
9	INCLUDED IN VFD	VFD BY MECH	480 / 3	'EHA'-14, 16, 18	1/2" C, (3) - #12 Cu & (1) - #12 Cu GRND	6.32	5 HP
10	INCLUDED IN VFD	VFD BY MECH	480 / 3	'EHA'-14, 16, 18	1/2" C, (3) - #12 Cu & (1) - #12 Cu GRND	6.32	5 HP
11	30ANF/3P 600V, NI DISC. SAFETY SWITCH	--	480 / 3	NOTE #6	1/2" C, (3) - #12 Cu & (1) - #12 Cu GRND	--	6 KW

MECHANICAL EQUIPMENT CONNECTION SCHEDULE NOTES:

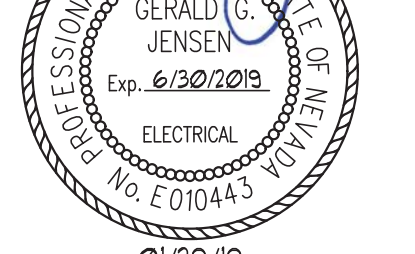
- COORDINATE ALL WORK WITH MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR PRIOR TO SUBMITTING A BID.
- SEE MECHANICAL PLANS FOR EXACT LOCATIONS OF MECHANICAL EQUIPMENT.
- PROVIDE (N) STARTERS WITH: CONTROL POWER TRANSFORMER, AUXILIARY CONTACTS, FULL FEATURE ELECTRONIC OVERLOAD BLOCK INCLUDING UV/OV/PR/FF, & RED RUN LED PILOT LIGHT, HOA SELECTOR SWITCH.
- CONTRACTOR'S BID SHALL INCLUDE NEW (OVERHEAD) CONDUITS AND WIRING AS REQUIRED FOR ALL EQUIPMENT CONNECTIONS. NEVERTHELESS, CONTRACTOR MAY REUSE ANY EXISTING CONDUITS, BACK BOXES, AND PATHWAYS THAT ARE MADE AVAILABLE DURING THE DEMOLITION PHASE OF WORK.
- REUSE (E) 3-POLE, 20 AMP BREAKER MADE AVAILABLE DURING THE DEMOLITION PHASE IN (E) PANEL 'EHA' AT POSITIONS #14, 16, 18 TO FEED (N) TEMPORARY WATER HEATER 'TWH-1'.



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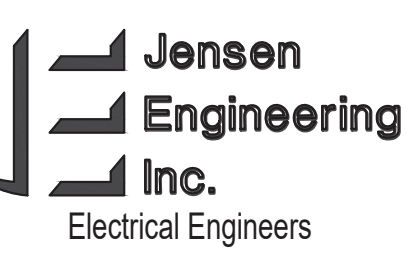
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BID DOCUMENTS

CONSULTANT:



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DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT
ELECTRICAL SYMBOLS & MECHANICAL
EQUIPMENT CONNECTION SCHEDULE

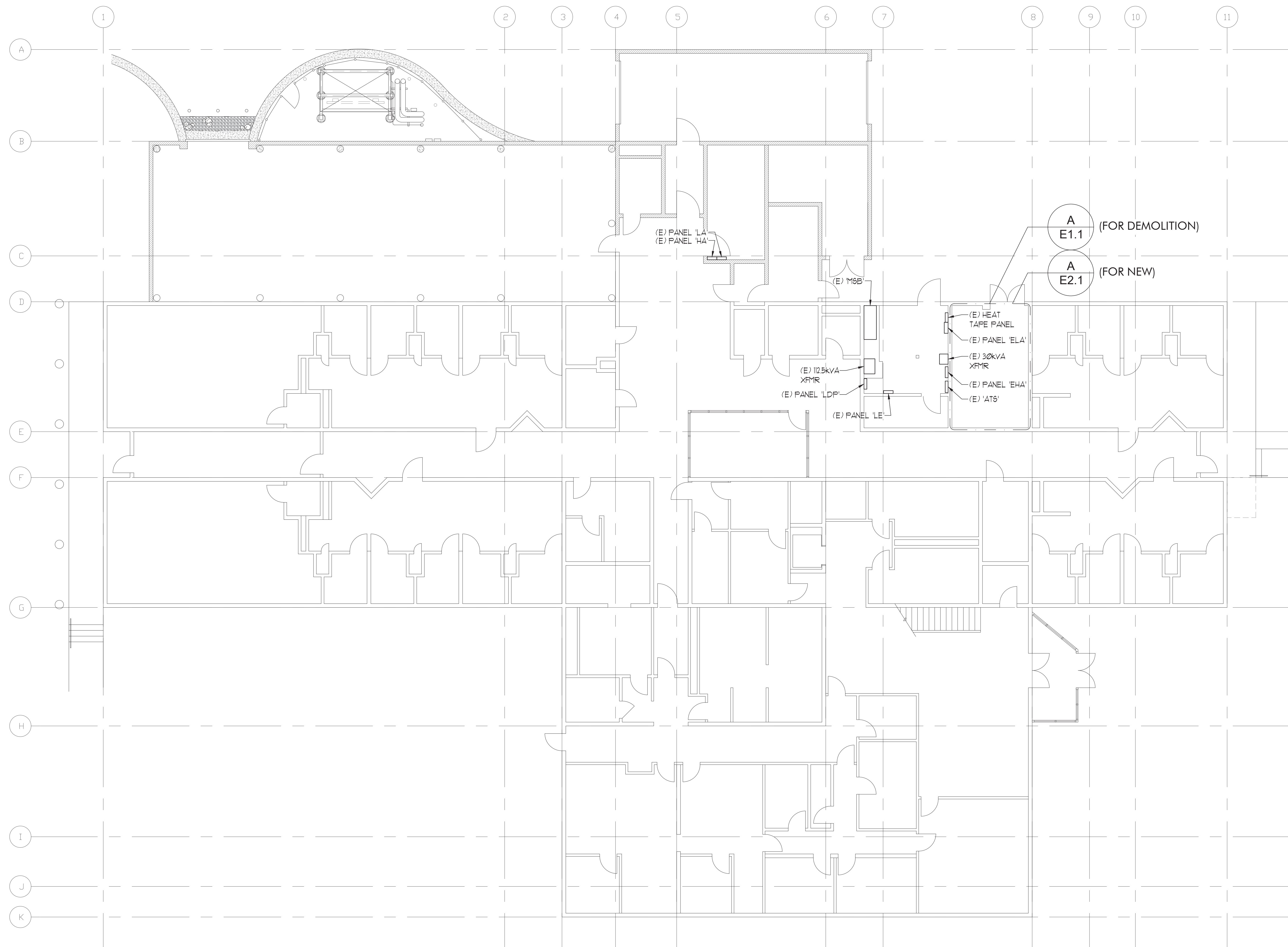
REVISIONS:

REV.	DESCRIPTION	DATE

DRAWN BY: KPJ
DESIGNED BY: KPJ
CHECKED BY: GGJ
APPROVED BY: GGJ
DATE: 08/08/18
PROJECT NO: J180JK

SHEET NUMBER:

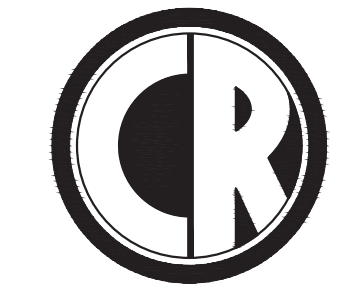
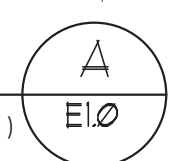
E0.1



OVERALL ELECTRICAL FLOOR PLAN

SCALE: 1/8" = 1'-0"

(NO WORK, SHOWN FOR CLARITY)

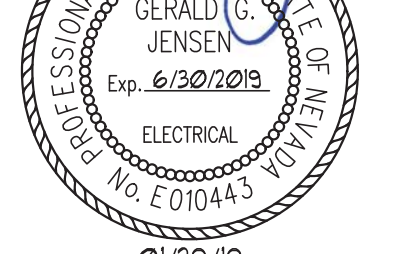


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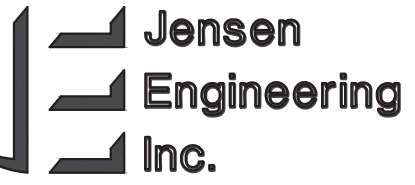
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DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT

OVERALL ELECTRICAL
FLOOR PLAN

REVISIONS:

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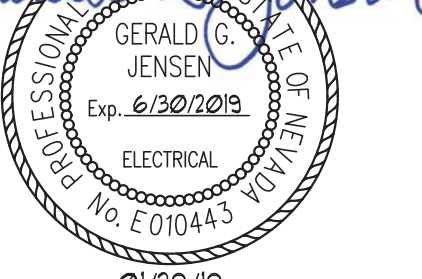


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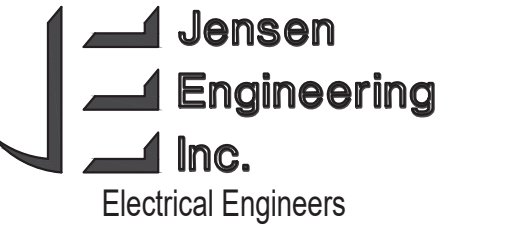
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SEALED: *Gerald G. Jensen*



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DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT
ELECTRICAL DEMOLITION FLOOR PLAN

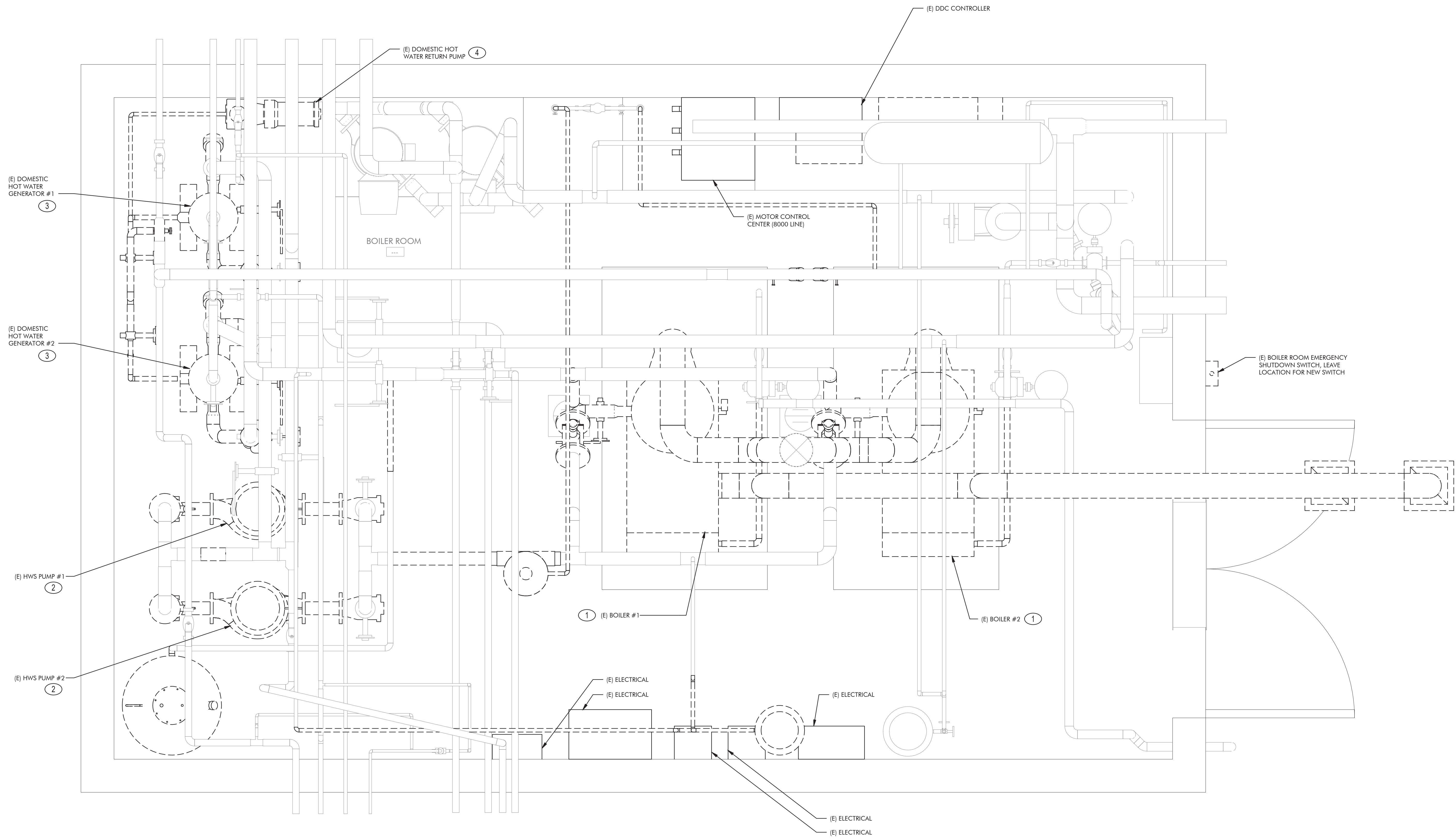
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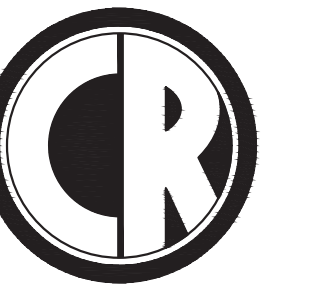
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SHEET NUMBER:

E1.1



- SHEET NOTES: (THIS SHEET ONLY)**
- 1 REMOVE AND RETIRE (E) CONDUIT AND CONDUCTORS TO (E) BOILER.
 - 2 REMOVE AND RETIRE (E) CONDUIT AND CONDUCTORS TO (E) HWS PUMP.
 - 3 REMOVE AND RETIRE (E) CONDUIT AND CONDUCTORS TO (E) HOT WATER GENERATOR.
 - 4 REMOVE AND RETIRE (E) CONDUIT AND CONDUCTORS TO (E) HOT WATER RETURN PUMP.

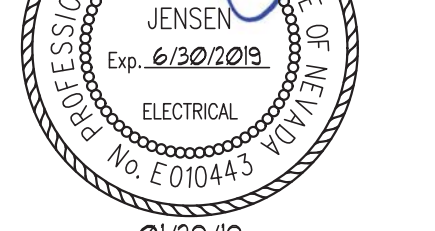


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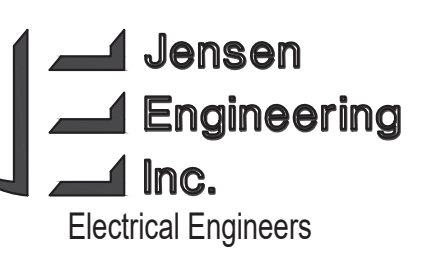
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SEALED: *Gerald G. Jensen*



01/29/19
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DOUGLAS COUNTY TAHOE JUSTICE COURT
BOILER AND DOMESTIC HOT WATER
GENERATOR REPLACEMENT
ELECTRICAL FLOOR PLAN

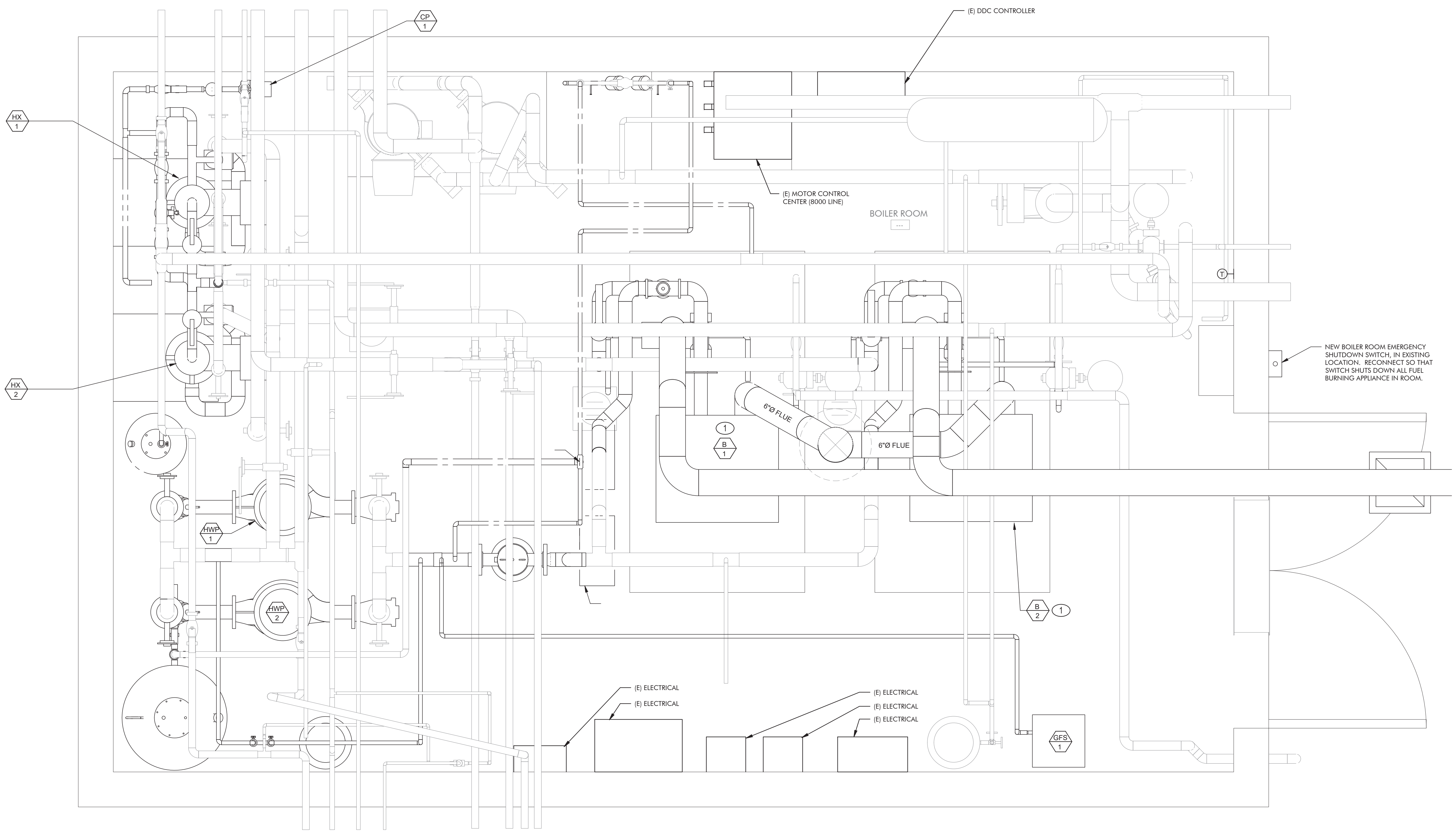
REVISIONS:

REV.	DESCRIPTION	DATE

DRAWN BY: KPJ
DESIGNED BY: KPJ
CHECKED BY: GGJ
APPROVED BY: GGJ
DATE: 08/08/18
PROJECT NO: J180JK

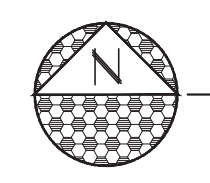
SHEET NUMBER:

E2.1



SHEET NOTES: (THIS SHEET ONLY)

- 1 USE (N) CP-1 CIRCUIT 'LA'-21 FOR CONNECTIONS TO THE GAS FIRED EQUIPMENT TO INTERRUPT POWER FROM THE E-STOP STATION IN AN EMERGENCY SITUATION.



ELECTRICAL FLOOR PLAN

SCALE: 1" = 1'-0"

